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A Long and Useful Life Serenely Ended.

Alva G. De Wolfe, one of the oldest citi- of Seymour, died at his home on d street Monday evening, aged 85 and eleven months. He was of a ved family, his father having lived 95, his mother 94, and his sister 99, G. De Wolfe being the youngest of amily.

e was of good old revolutionary stock, mother was a Stanley and her father one of the Revolutionary patriots who up his life for his country on board Jersey prison ship. Mr. De Wolfe's er, Levi De Wolfe, served six years in War of the Revolution and afterward nufactured scythes, etc.

r. De Wolfe worked at his trade in ris and Plymouth until 31, then started he West Indies but the ship was driven f its course and after a stormy voyage ided at Georgetown, Guiana, where ablished a gunsmith shop. The next e returned, obtained a stock of guns, and went back, remaining through ioler season. With the return of er weather, having disposed of his of guns, etc., he returned to New and was there engaged in the manu- re of mathematical instruments.

ls health becoming impaired he took ip to Buenos Ayres and from there on a whaler, taking the place of an etent blacksmith in the care of the and implements used in whaling. round Cape Horn. Returning in restored health he came was at Thomaston for the

facture of rubber toys. From there he came to the rubber mill then running at Beacon Falls, where he remained a year. About that time Goodyear purchased a mill at New Brunswick, N. J., and induced Mr. De Wolfe to come there and take charge of the designing and construction of the machinery. After nearly two years there he returned to Beacon Falls, bringing his family to Seymour.

A. G. Day had then been in Seymour about a year, and while cleaning great quantities of rubber for use in other mills, was experimenting with a view to producing a reliable hard rubber compound. Mr. DeWolfe came to Seymour and while Mr. Day studied and experimented with various chemical combinations calculated to produced the desired results, Mr. De Wolfe planned and supervised the construction of the necessary machinery. From that time Mr. De Wolfe was for many years Mr. Day's able assistant. To him is due the perfecting of very valuable machinery for insulating all kinds of telegraph wire and ocean cables. This machinery was commenced in 1858, and has since been in constant stages of improvement, until it has at last been brought to practical perfection. To Mr. De Wolfe's steady and untiring industry in all these difficulties, chemical and mechanical, Mr. Day acknowledges himself more indebted than to any other one person, as well as for sustaining his courage and perseverance under difficulties and perplexities which seemed almost insurmountable.

Five daughters survive him, Mrs. W. Lea Roberts, Mrs. Mamie Barber and Mrs. W. R. Brixey of Seymour, Mrs. Nellie S. Jackson of Ansonia, and Mrs. Elizabeth Sears of Cleveland, Ohio.

The funeral will be attended from the house this afternoon, in charge of Undertaker Ward. Rev. R. B. Kimber will officiate. W. [illegible] and H. P. [illegible]

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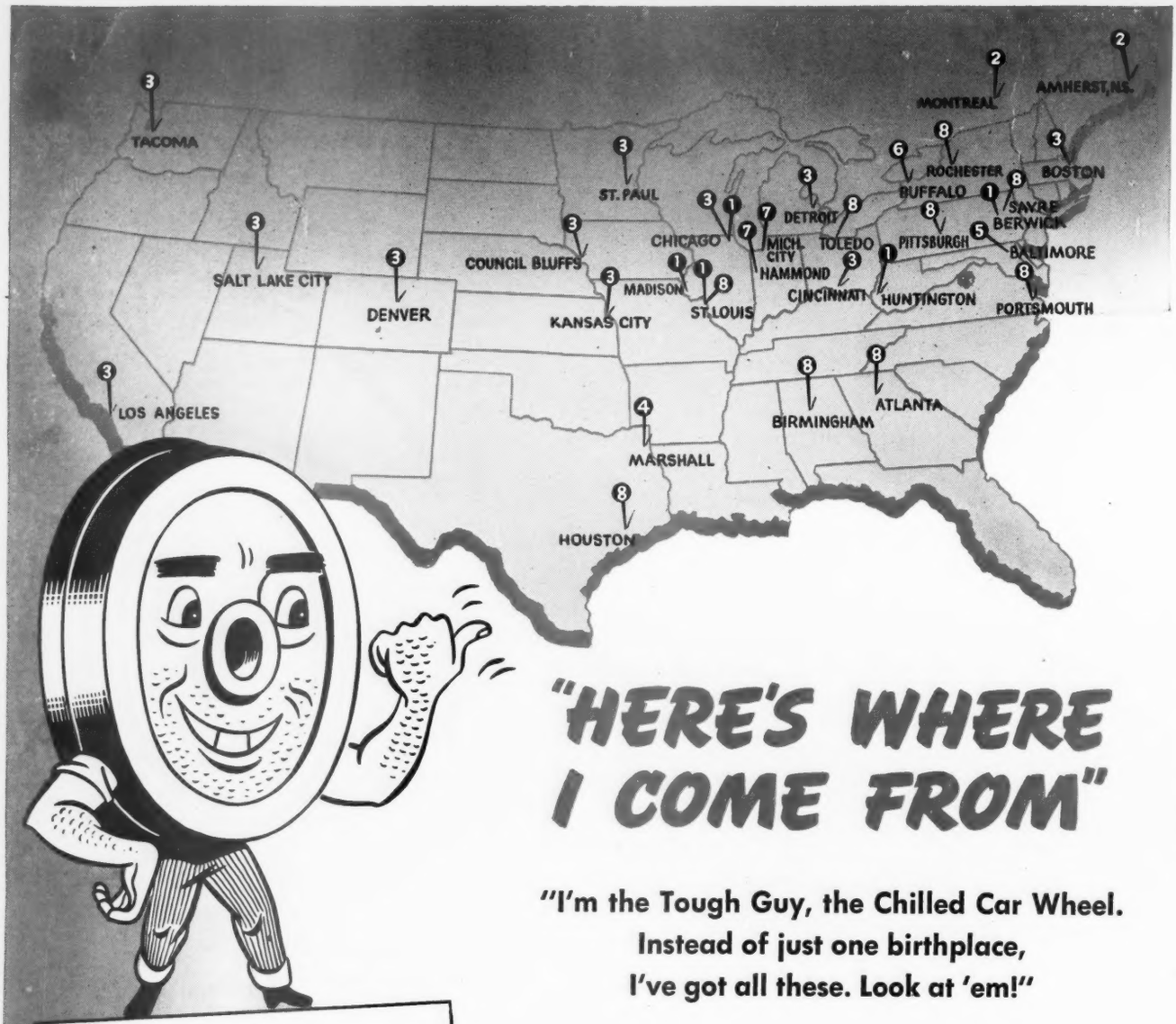

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RAILWAY AGE

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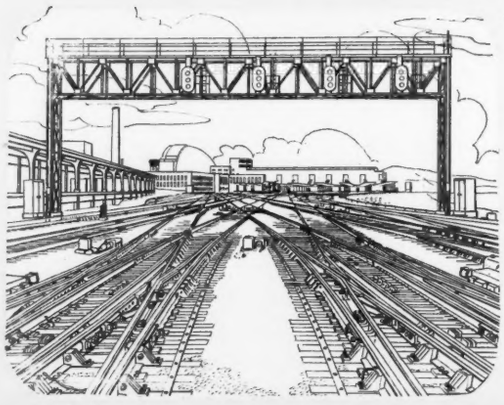

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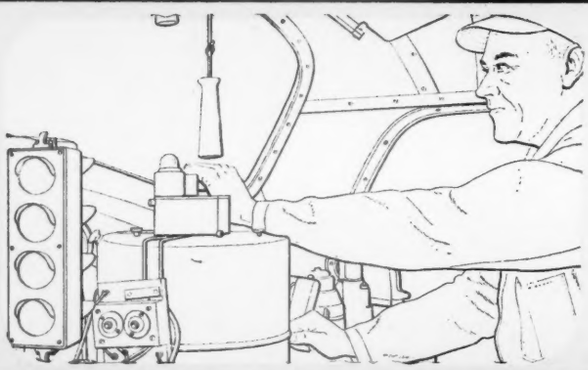

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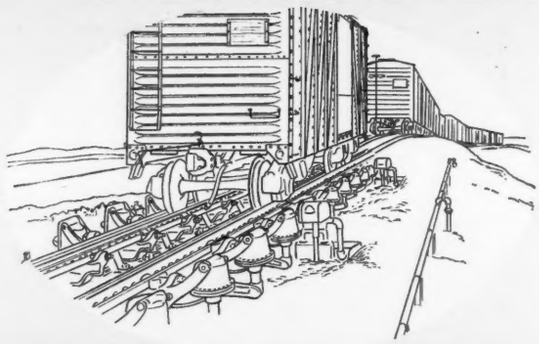

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THE YEAR AT A GLANCE

STOCK-TAKING TIME: In this issue of *Railway Age*, as is the regular practice as a new year begins, the events of the old year are reviewed and the prospects of the new are assayed. The usual tabulations are included of new equipment installed or ordered, new work undertaken, new financing accomplished, and new developments in facilities and service. And as they look ahead our editors see new opportunities for the railroads to produce efficient transportation.

HEARTENING 1947: When the Interstate Commerce Commission without undue delay allowed the railroads to effect an interim freight-rate increase to offset the increase in their expenses occasioned by the higher wages allowed the non-ops, a rate increase which would bring in substantial added revenues while the arguments for and against the permanent increase proposed in Ex Parte 166 were being debated, President Faricy of the Association of American Railroads hailed that action—accompanied as it was by a report in which the commission plainly acknowledged its duty to foster the railroads' good health (a duty which it had at times appeared rather reluctant fully to perform) —as a "heartening" development. Consideration of the articles in this issue in which is outlined 1947's impact on the railroads leads to the conclusion that the same adjective can be applied, at least conditionally, to the year's happenings.

HOPEFUL 1948: The railroads are not out of the woods yet, to be sure. The full rate increase sought in Ex Parte 166 will have to be authorized if their net operating income this year can reach the level it must reach to support continued expenditures for maintenance and expansion in the very great volume that the railroads' needs require. Prices of materials and fuel must approach stability, and so must wage rates, before it can be said that the growth of the railroads' expenses is under control. New passenger and freight cars must be on the rails to earn any return on the investment the railroads are making in them, and to alleviate the evil effects of insufficient or obsolescent equipment. And a new attitude toward the industry as a self-reliant private enterprise must be assumed by political leaders before the handicaps of subsidized competition are eliminated. But the railroads can—and do—begin 1948 hopefully, because there are reasons (many of them set forth in this issue's articles) to support their hope that better treatment is in store for them.

THE RECORD: In 1947 the railroads made new records in the transportation of freight, despite car shortages and the urgent need for more modern facilities and equipment. In 1947 the railroads' capital expenditures were about $889 million, even though their net earnings before fixed charges were only about $748 million. In 1947 they spent for manufactured products and fuel some $2½ billion—more than in any previous year in history. In 1947 they ordered more new freight cars than in any year since 1924. In almost every article in this issue is statistical evidence that the railroads have faith in their future—that they are going ahead as rapidly as conditions permit to prepare themselves for the bigger achievements a steadily expanding national economy will demand of them.

BOOM IN SIGNALING: Large programs for the installation of modern forms of signaling and communications apparatus are in the making, our articles reviewing these fields indicate. The recent Interstate Commerce Commission order requiring signaling of all high-speed lines promises to hold railroad purchases of the necessary equipment at record high levels for a long time to come.

MORE DIESELS: As is noted in the discussion on page 162, the number of Diesel-electric locomotives on order increased practically every month last year, despite the fact that more units of this type of motive power were placed in service in the first ten months than were on order last January. Diesels now handle about 10 per cent of the road-freight tonnage, 25 per cent of the passenger business, and 30 per cent of switching work.

URGENT NEEDS: Material shortages, labor shortages, money shortages—these have delayed the railroads' fullest development of their ability to perform efficient transportation service. The article on page 164 reviews the freight-car shortage situation as it developed through 1947, the most critical of all the shortages that perplexed operating officers. Passenger-train car deliveries during the year were only 283, as against orders on the builders' books as the year ended for 2,503 cars (page 166). Railroad shops, especially those handling repairs on steam locomotives, were, with some conspicuous exceptions, in great need of modern machine tools and lay-outs rearranged in proportion to present demands, as the article on page 176 observes. Many major items of replacement material, rails particularly, still are in inadequate supply, as the review on page 150 shows. More mechanized equipment for roadway and structures work not only will help in catching up with work deferments but will partially offset higher labor costs, it is pointed out in the discussion on page 156.

TRAFFIC AND FINANCIAL PROSPECTS: For many years a regular feature of this statistical number has been the comprehensive survey of the year's railroad operations by Dr. Julius H. Parmelee, vice-president of the Association of American Railroads. It appears in this issue on page 186. Freight traffic this year probably will be close to that of 1947, according to this authoritative analysis, and passenger traffic will be about 70 per cent greater than in "normal" 1939. The big financial problem is to secure sufficient stability and volume of profits to provide an adequate return for equity investors and a margin for the full development of the fixed properties. Our review of the railroads' financial position (page 199) indicates that there is good ground for hope that some efforts at last are being made in the right quarters to solve this problem.

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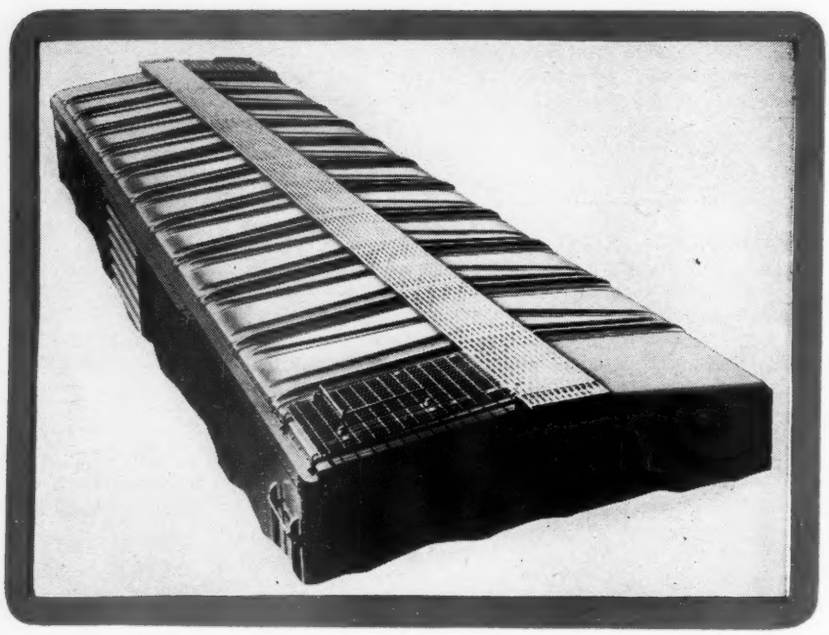

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THE FAITHFUL AND HOPEFUL RAILROADS

No other large industry in America showed a greater sense of responsibility for public service than the railroads did in 1947—or was repaid by smaller material rewards to induce continued effort and expenditure to this end. The railroads resolutely attacked the shortage of facilities, inherited from the war, which existed throughout the year (1) by intensive efforts to extract the maximum service from limited facilities and (2) by expanding capital expenditures during the year to the enormous total of $889 million, or 62 per cent more than in 1946. So successful was this effort that, despite an actual decline in the supply of freight cars, the railroads nevertheless moved 44.5 million carloads of freight—6 per cent more than in 1946 and 1.4 per cent more, even, than in the wartime peak year of 1944. They performed this colossal and vital service for the American people for net earnings, before fixed charges, of $748 million—or only about 3⅓ per cent on the net investment in railroad property.

The leadership of the industry is, however, far from discouraged at the failure, so far, of net earnings to respond in degree to the nation's need for railroad transportation. On the contrary, the almost unprecedented rate at which capital expenditures are being made to improve the quantity and quality of railroad service affords conclusive proof that the leaders of the industry have not for many years been so hopeful as they are today that the future holds reasonable promise for profitable railway performance.

The program of capital improvements undertaken by the railroads in 1947 was the largest for any one year in the history of the industry with the single exception of 1923—but in that year the railroads were in a far more favorable position to expand and improve their plant than in 1947. For one thing, both labor and materials were lower in price and in much easier supply in 1923 than in 1947. More important still, in 1923 the railroads were permitted to earn net operating income of $975 million on an investment of $21 billion in road and equipment. What a contrast to such earnings 1947 offered! Only $748 million of net operating income was earned on an investment which was $7 billion greater than in 1923. The ratio of profit on the investment was 43 per cent less in 1947 than in 1923. Railroad stocks on the Dow-Jones average sold as high as 90 in 1923—only 15 per cent less than the high attained in that year by industrial stocks. In 1947 the high for the railroad shares was 53—71 per cent below the high of the industrials.

The action of the railroads in proceeding with large-scale improvements in the absence of tangible reward can be explained only by their faith—"the substance of things hoped for, the evidence of

things not seen." The industry saw the demand for its service advance in the second year of peace to a total of 737 billion "traffic units" (i. e., revenue tons carried one mile plus twice the total of passengers carried one mile), or 45 per cent more than in the boom year 1929. Surely when the American people show their need for that much of an increase in production by an industry, they are not going to be so unrealistic as to withhold indefinitely the *means,* i. e., the earnings, necessary to sustain that volume of transportation.

The Alternative to Fair Earnings

Simple arithmetic plainly demonstrates that the railroads cannot long continue their present stepped-up program of additions and betterments with net earnings no higher than they were in 1947. The industry can no longer raise new capital, except for rolling stock and motive power, by the sale of securities to investors. Unless and until its standing with the investing community is restored, reinvestment of earnings is the only means of obtaining funds for improvements to fixed plant. Such investment in 1947 so exceeded current earnings that, in the first nine months of the year alone, working capital suffered a decline of more than $200 million. There is a limit which will soon be reached in the degree to which working capital may thus be depleted. The only alternative to a restoration of earnings is a chronic shortage of railroad facilities of indefinite duration, with all the attendant economic loss and peril to the national defense which such a condition would inevitably entail.

Transportation is a product which, like any manufactured article, requires materials to produce. One of these materials is steel rails. In the five years ended 1929, 10.3 million long tons of rails were installed in replacement by the railroads while 2,500 billion traffic units of transportation service were produced. In the five years ended 1946, 6.9 million tons of rails were installed while 4,161 billion traffic units were produced. Thus, the rate of rail renewal in relation to traffic volume has in recent years been less than half what it was in the latter part of the decade of the Twenties. Rails, in other words, are being used up more rapidly than they are being replaced. The same could be said of practically all other standard products and materials used in the provision of transportation—e. g., freight cars.

But the American people, for their prosperity and defense, need much more from their railroads than merely the maintenance of the present quantity and quality of transportation; they also require an increase in both its quantity and quality, which can come only if the railroads can lay their hands on the funds with which to make these improvements. To make these funds available net earnings must be greatly increased—either so they can be directly invested, or used to enlarge the yield and the safety of railway securities so that investors will once again be induced to offer their savings to the railroads.

It can be demonstrated—although perhaps not with finality in the small space here available—that the inadequacy of railway net earnings, to assure the continuing and increasing investment which the public interest requires, arises entirely from the kind of treatment the railroads receive from the political authorities. The figures show that the railroads are not a "mature" or "stabilized" industry—still less a "declining" one. Indexes of operating efficiency indicate for the railroads the same quality of sustained improvement which characterizes "young" industries. The public demand for railroad service is not diminishing or "leveled off," but is constantly increasing, despite large recent additions to other forms of transportation. There is no possible explanation for the fact that the railroads are less prosperous than other industry except (1) that they are not permitted, as quickly or to the same degree, to make price adjustments as other industry does to compensate for increased costs; (2) that they are the only large industry against which the government actively competes by providing rival facilities (e. g., waterways, highways, and airports) which may be used either free or at charges which are much lower than actual costs; and (3) that political control of railway labor relations is provided for under legislation which sets railroad employees apart from all other industrial employees as the recipients of special privileges (e. g., "social security") under conditions which are very costly to employer.

Managements Exhibit Confidence

If these conditions were corrected, there would remain no reason at all why the railroads should not be just as dependably profitable as any other large-scale enterprise. When that time comes, there will no longer be any difficulty of finding ample investment funds to keep the railroads as up-to-date as the public interest requires. The leaders of the industry are demonstrating confidence in their ability to bring about public understanding of this situation, so that the requisite change in public policy will occur. Indeed, their confidence is increasing—the Bureau of Transportation Economics and Statistics of the Interstate Commerce Commission just last week revealed that projected railway capital expenditures in the first quarter of 1948 will total $320 million, an increase of 108 per cent above such outlays in the first quarter of 1947.

The progress of the railroads in 1947 and prospects for 1948 in all major branches are reviewed in detail in the articles of this issue. Many improvements, with more in prospect, are reported in structures, in signaling, in communications, in other

electrical installations, and in roadway and shop equipment. Aggregate railway purchases—manufactured products and fuel combined—topped the $2½ billion mark in 1947, the largest total ever reached in any one year. There is no other one aspect of railroad property which can be comprehended so readily in physical units as cars and locomotives—and the car and locomotive orders placed in 1947 are really noteworthy. The total of freight car orders placed in the year was 121,094 including 1,561 for export. This compares with 106,722 cars ordered in 1946, which included 39,999 for export. Cars ordered for domestic use (including private car lines as well as railroads) totaled 119,488, the largest number ordered for domestic service since 1924, when orders were placed for 145,616. The railroads alone ordered 106,182 freight cars.

Locomotives of all types ordered in 1947 totaled 2,779, including 624 for export, compared with 1946 orders for 1,681 locomotives, including 629 for export. Of the 2,155 locomotives ordered for domestic use, 1 was electric, 2,075 were Diesel-electric and 79 were steam, compared with domestic orders in 1946 for 8 electric, 989 Diesel-electric and 55 steam locomotives. (This total of locomotives ordered for domestic use is the largest since 1922, when 2,600 were ordered.) Of the 79 steam locomotives ordered, 75 were ordered by railroads (including 10 to be built in railroad shops) and 1,950 of the 2,075 Diesel-electrics ordered were ordered by the railroads.

Orders for 283 passenger-train cars for domestic service and 63 for export were placed in the United States in 1947, compared with 1946 orders for 1,829 for domestic service and 56 for export. The 1947 figures are the smallest since 1942. They do not reflect, however, a declining interest of the railroads in this class of equipment, but the fact that there exists such a large back-log of unfilled orders already placed.

Freight Cars the First Need

The supply of rolling stock—especially freight cars—constitutes the very heart of the railroads' *immediate* problem. There are available sufficient tracks, locomotives, and other facilities to move the present volume of traffic, but there are not enough freight cars to do so. Last week, President William T. Faricy of the Association of American Railroads revealed that the railroads in 1947 were forced for obsolescence and other reasons to retire 70,000 freight cars, while only 62,500 new cars were placed in service by the railroads and railroad-owned refrigerator car lines. Despite political and regulatory pressure throughout the year to secure from the steel industry additional materials to enable the car-building industry to increase its production to 10,000 cars a month, that goal has not yet been reached. At the end of October, 1947, the railroads owned 47,000 fewer cars than they did when the war ended in August, 1945.

On December 1, the railroads and private car lines had more than 125,000 freight cars on order—which would be two years' production at the 1947 rate and more than a year's production, even if the goal of 10,000 cars per month is attained.

Until the suppliers of materials can be prevailed upon to do their necessary part in alleviating the transportation shortage, the only means open to the railroads for mitigating its effects is to exert themselves to the utmost to get more transportation service out of the available supply of cars. Concentrating upon "turn-around" time per loaded car, the railroads succeeded in October, 1947, in reducing this time to 12.4 days—a half-day better than the previous record established in October, 1946. This reduction was the equivalent of adding some 80,000 cars to the available supply.

The Task of Leadership

These expedients for the husbanding of scare tools are necessary in a period of emergency such as has existed in the transportation industry since the beginning of the war. Doing business by appealing to sentiments of a non-economic nature is, however, a poor reliance as a basis for operation over a protracted period of time. Appeal to such sentiments would seldom if ever be necessary if the operation of ordinary economic forces had not been previously thwarted. If the railroads had not been artificially starved and discouraged throughout the 1930's—by extensive governmental aid to rival agencies of transportation and by unrealistic policies as to rates and in support of exactions by organized labor—the industry would doubtless have had a larger plant, including more rolling stock, at the outbreak of the war than it did have. Had that condition obtained, then the present transportation shortage would be much less severe, and it might not have arisen at all.

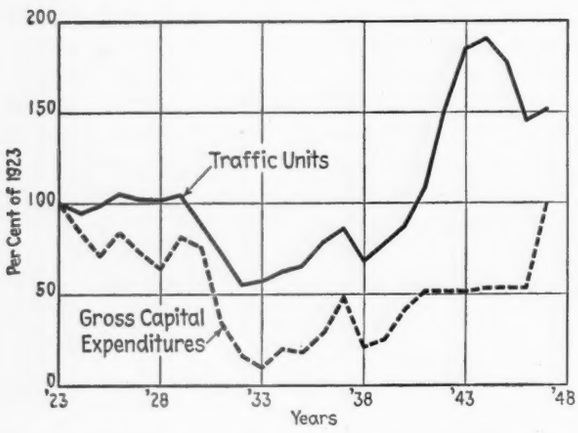
A permanent and dependable solution to any economic problem—and the country's transportation job is an economic problem, in which politics has no legitimate place—is to be found only in realistic dealing with economic forces. There will, over the years, be a dependable supply of railroad transportation at all times, when and if the political authorities can be induced to cease interfering to remove reasonable opportunity for profit from the provision of such service. To persuade the shipping fraternity and the articulate public—and through them, ultimately, the politicians—to see and deal with the "railroad problem" in terms of this simple realism is the greatest task of the leadership of the railroad industry. The evidence is conclusive that railroad leadership believes it can accomplish this result.

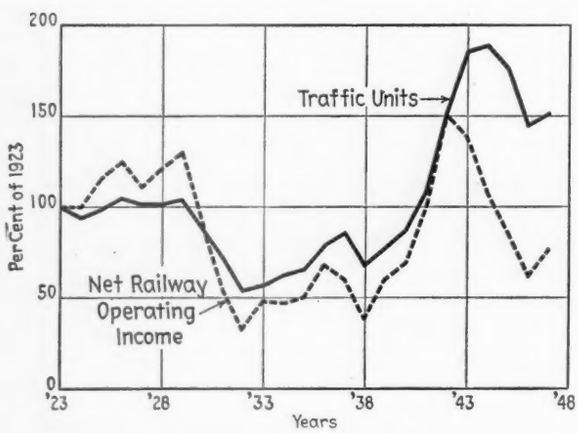
LARGE IMPROVEMENT PROGRAM BEGINS

Railroads reduce working capital to get urgently needed expansion program started, but greatly improved earnings are needed to sustain activity at this level

By **JAMES G. LYNE**
Co-editor

The country continued to suffer throughout 1947, as in every year since 1941, from an increasingly severe shortage of railroad facilities—a deficiency which the railroads in 1947 made great efforts to alleviate, dipping into their cash reserves to do so. But the shortage represents the cumulative effect of many years of inactivity—from 1930 until the outbreak of the war—in the expansion and improvement of railroad plant. A corresponding period of expenditures at an above-normal level will, therefore, be needed to erase the arrearage in modernization and expansion. All the evidence indicates that the railroads are eager to go ahead with a sustained program of improvements—as long as they can lay hands on the necessary funds. They have initiated the program without waiting to see whether their earnings will be restored to a level necessary to permit its continuance.





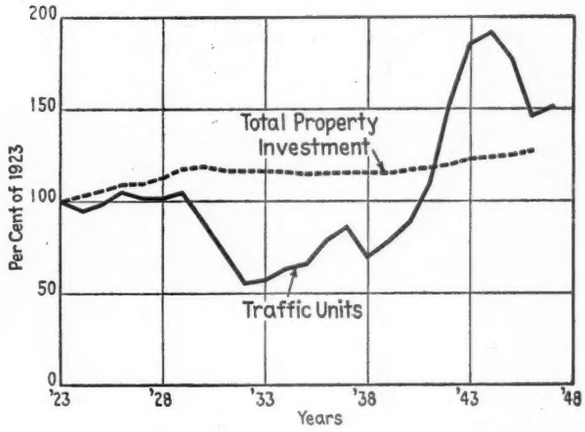
The country has a serious transportation problem, and the very heart of that problem consists in providing a supply of needed new capital to the railroads. The railroads no longer have a standing in the market for investment capital which enables them to secure funds there, except for rolling stock and motive power. For improvements to fixed property the industry is, speaking generally, limited to the funds available from the reinvestment of earnings, and earnings during the past two years have been insufficient to meet the industry's needs for new capital. This is shown in Table I herewith, which indicates that the railroads' cash resources declined by $200,000,000 between the end of 1946 and September 30, 1947. The excess of current assets over current liabilities was $533,000,000 less at the end of September, 1947, than the peak achieved in 1945.

Railroad improvements are going on—at a rate as great probably, as that of any period in history—but activity at this level is being sustained by expending

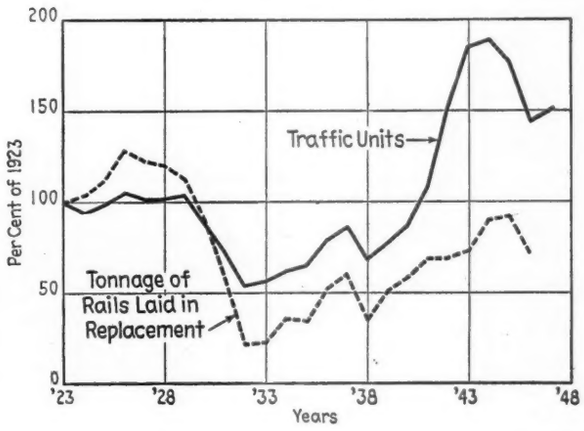
Expenditures by the railroads for plant improvement and expansion surged upward sharply in 1947 but, as the chart at left shows, investment of new capital to improve railroad plant has not kept pace with increased traffic, especially since the beginning of the war. The large expenditures of 1947 were not covered by current earnings nor (except for equipment) from the savings of investors but required dipping into working capital.

"Traffic units" shown on these charts are the sum of revenue ton-miles plus twice the total of passengers carried one mile. Net earnings, as is shown, have sagged badly since 1929 except during the war years, although traffic has continued since the war at a record level for peace time. The railroads are doing a boom-time business at a depression rate of earnings, a situation needing correction to give them the funds without which they cannot keep their facilities adequate to the needs of commerce or the national defense.

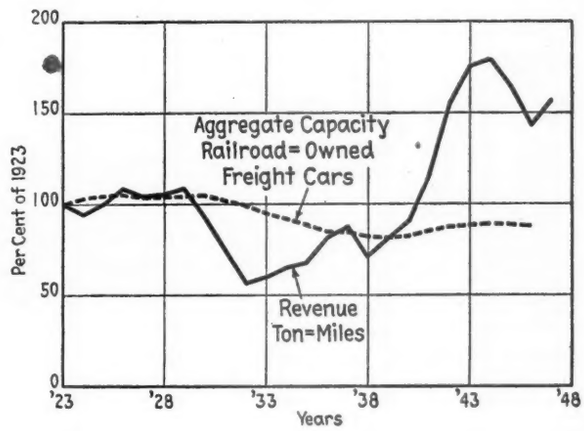
This chart shows how, during the 1930's, railroad capacity far exceeded the nation's demands for transportation service. This condition, combined with miserable earnings and prophecies of gloom, led to a cessation of all expansion. But the experience of the war years and the period since the war have proved that America needs a far larger railway plant than that of the 1930's. Today's job is to take the steps necessary to permit the needed expansion.



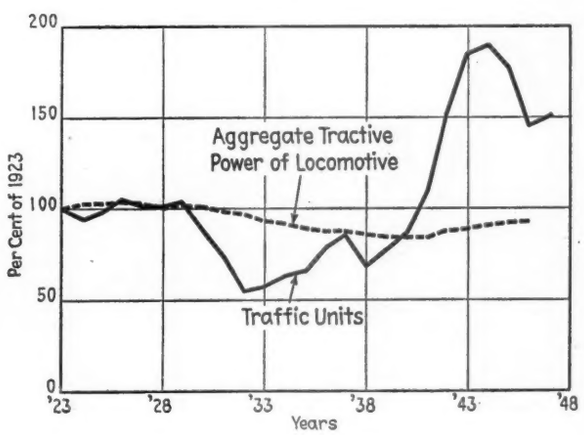
All curves which show the volume of physical goods being supplied to provide railroad transportation, in relation to the volume of transportation service being produced, tell the same story, i.e., that not enough materials are going into the plant to sustain production at the present level. The chart on the right portrays this situation as regards rails laid in replacement.

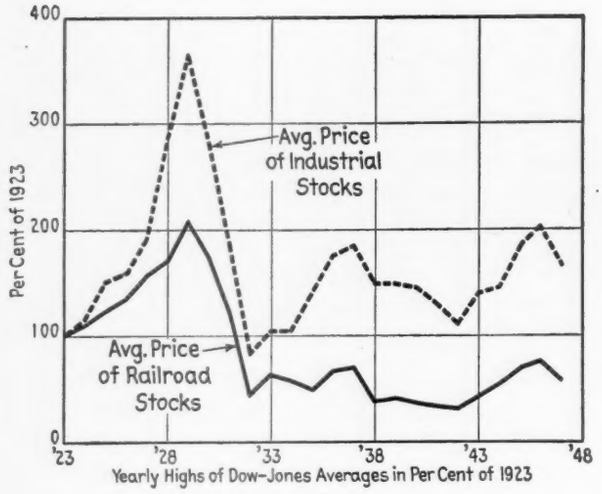


This chart suggests what a great deficiency needs to be made up in the supply of freight cars—to carry such a volume of traffic as the railroads now have to deal with. The whole story does not come out, either, in this chart—because many of the cars which go to make up the present supply are too old for efficient service, and are retained simply because old cars are better than no cars. Hence, the need for additional freight cars is much greater than this chart indicates.

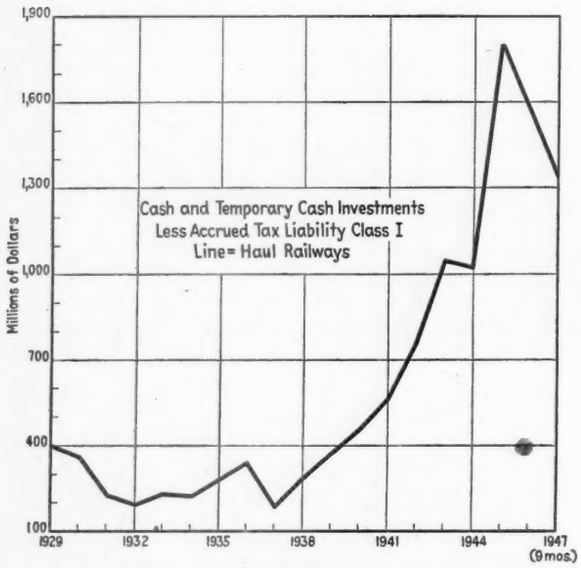


While no acute shortages of motive power have been reported, this chart shows conclusively that motive power units in service today are—compared to previous times—being forced to produce a much larger daily mileage, which means that the units are wearing out much faster than they ever did before.





Other industries besides the railroads are afflicted with depressions, with high wages, and high prices of materials, but the railroads have suffered peculiarly in the estimation of investors, as this chart shows. The only explanation must lie in conditions which burden the railroads but not other industry. These conditions are tardy and inadequate rate adjustments, competition from government-owned transportation facilities, and more onerous labor costs and practices than those prevailing in other industry.



The railroads have embarked upon a program of large-scale improvements, compensating for their lack of credit and earnings by dipping heavily into the cash reserves which they accumulated from favorable wartime earnings. The bottom of this barrel will be quickly reached, as this chart indicates, unless earnings and credit soon improve.

the cash resources accumulated from the relatively high earnings of the war years. Present earnings and present credit will not support the continuance for very long of capital improvements at the present level. Nevertheless, the nation's need for transportation service requires that there be no let-up in progressing the improvement program until the deficiencies of the inactive 1930's are made up; and that, hereafter, resources be made available to permit expansion and improvement of railroad plant at a rate to equal the country's growth in production and population.

The public interest requires the immediate restoration of railroad earnings and credit as the only means whereby, under private ownership, the industry can secure the funds to keep its facilities abreast of the nation's need for transportation service. Thus it becomes a primary duty of railroad management to explain persistently to the public—and to the regulatory

Table I—Selected Balance Sheet Items, Class I Line-Haul Railways

Year	Cash and Temporary Cash Investments (000)	Total Current Assets (000)	Total Current Liabilities (000)	Excess of Current Assets over Liabilities (000)	Total Long-Term Debt (000)	Total Corporate Surplus (000)
1929*	$677,955	$1,717,953	$1,200,984	$516,969	$11,138,121	$5,029,171
1930*	592,071	1,510,975	1,162,170	348,805	11,174,816	4,577,730
1931	419,510	1,213,350	1,147,239	66,111	11,153,678	4,395,508
1932	379,136	1,063,271	1,130,731	67,460	11,247,777	4,094,531
1933	394,117	1,034,560	1,261,382	— 226,822	11,112,055	3,900,883
1934	380,212	1,058,326	1,471,326	— 412,995	11,041,472	3,714,302
1935	439,403	1,086,467	1,670,767	— 584,300	10,821,788	3,507,220
1936	578,343	1,292,421	1,885,574	— 593,153	10,452,266	3,349,889
1937	392,486	1,143,990	1,937,830	— 793,840	10,686,814	3,126,391
1938	480,550	1,120,968	2,243,961	—1,122,993	10,558,723	2,739,742
1939	578,359	1,292,705	2,555,903	—1,263,198	10,352,646	2,563,879
1940	680,400	1,442,142	697,200†	744,942	11,288,311†	2,474,249
1941	904,600	1,914,544	1,115,320‡	799,224	11,186,063	2,666,625
1942	1,736,933	3,065,093	1,806,030	1,259,063	10,879,476	3,167,986
1943	2,807,275	4,497,065	2,923,078	1,573,987	10,462,770	3,748,508
1944	2,753,560	4,488,042	2,844,042	1,643,832	9,830,186	4,327,893
1945	2,545,909	4,345,830	2,108,245	2,237,585	9,286,001	4,608,846
1946	1,950,874	3,494,260	1,584,433	1,909,827	9,093,281	4,638,958
1947	1,975,854	3,552,540	1,847,839	1,704,701	(1947 totals are Sept. 30)	

* Switching & Terminal Companies Included.
† In 1940 and thereafter long-term debt in defaut is included in long-term debt. In years prior thereto it is included in current liabilities. Likewise in 1940 and thereafter default interest is removed from current liabilities to deferred liabilities.
‡ Tax liability included in 1941 and thereafter.

and legislative authorities—why it is more economical and a more foresighted public policy to pay a remunerative price for transportation, thus assuring the maintenance of sufficient and efficient service, than it is to subject the public to the inevitable shortage and deterioration of transportation which must follow starvation rations for the railroad industry.

Considerable headway has undoubtedly been made in securing public and regulatory recognition of this principle—as was demonstrated in 1947 by the action of the Interstate Commerce Commission in its ready approval of "interim" freight rate increase of 10 per cent; and also in other rate cases, e.g., the mail pay case and the New Haven's increased passenger fares.

Ease and speed in securing rate adjustments to conform to higher costs are among the conditions requisite to a restoration of a satisfactory level of new investment in the railroad industry, but, standing alone, are not sufficient to secure that objective. The railroads also need from the government a cessation of special favors to rival and less-vital transportation agencies—concessions which arbitrarily and uneconomically deprive the railroads of traffic and increase the unit costs of railroad service. The railroads also need, not just a mechanism for rapidly passing along mounting labor costs to their customers, but a regime of labor relations which will minimize arbitrary payments for work not done, and which will not subject the railroads to exactions in wage rates beyond the general market level for wages.

The provision of these means to a restoration of railroad earnings and credit—and, hence, of sustaining over a term of years the industry's present high rate of plant improvement—will not come without effort. But what grounds can be found for assuming, either, that the effort will not be forthcoming or that it will not produce results?

After all, the railroads need not, and do not, ask the public, the legislators, or the regulators to take any action whatsoever which is not clearly required in the public interest. If the public will act toward the railroads in a manner to promote, not the selfish interests of the railroads, but those of the public itself, then railroad earnings and credit will be restored to a degree to permit and encourage the continuance for a considerable period of years of a program of railroad improvements at a level approximating the heightened rate of activity which prevailed in 1947.

Table II—Changes in Cash and Current Assets of Individual Large Railroads

	Cash & Temporary Cash Investments Sept. 30		Inc. or Dec.	Total Current Assets		Total Current Liabilities		Excess of Current Assets over Liabilities		Inc. or Dec.
	1947	1946	%	End of Sept. 1947	End of Sept. 1946	End of Sept. 1947	End of Sept. 1946	End of Sept. 1947	End of Sept. 1946	%
A. T. & S. F.	$149,196,822	$153,223,025	− 3	$228,640,685	$225,723,524	$95,878,671	$99,055,764	$132,762,014	$126,667,760	+ 5
A. C. L.	16,208,672	18,742,099	− 14	43,364,196	44,553,493	20,907,027	23,384,071	22,457,169	21,169,422	+ 6
B. & O.	41,983,208	59,450,251	− 29	96,053,313	104,242,199	53,552,009	53,750,396	42,501,304	50,491,803	− 16
B. & M.	15,931,191	16,051,749	− 1	27,897,568	27,207,131	16,226,035	15,908,332	11,671,533	11,298,799	+ 3
C. of Ga.	12,099,572	19,122,869	− 36	23,950,914	30,107,908	5,555,748	6,787,946	18,395,166	23,319,962	− 21
C. of N. J.	5,653,448	6,924,832	− 18	19,234,322	18,011,554	10,120,528	11,342,796	9,113,794	6,668,758	+ 37
C. of Pa.	5,268,085	1,443,125	+265	8,147,785	3,542,414	4,795,412	3,049,695	3,352,373	492,719	− 32
C. & O.*	52,360,307	53,525,427	− 2	103,979,158	103,733,954	76,934,630	65,874,447	27,044,528	37,859,507	− 29
C. & E. I.	4,820,769	4,584,784	+ 5	10,258,107	9,673,426	5,484,447	5,726,060	4,773,660	3,947,366	+ 21
C. & N. W.	25,195,109	28,717,175	− 12	59,808,796	60,904,381	34,926,681	34,994,537	24,882,115	25,909,844	− 4
C. B. & Q.	51,749,259	46,880,291	+ 10	87,679,361	101,447,016	47,801,134	59,541,025	39,878,227	41,905,991	− 5
C. G. W.	7,197,434	7,762,724	− 7	11,408,537	11,697,841	6,342,327	6,128,812	5,066,210	5,569,029	− 9
C. M. St. P. & P.	39,972,553	48,061,180	− 17	97,682,972	100,109,815	42,467,620	35,291,837	55,215,352	64,817,978	− 15
C. R. I. & P.	92,937,385	76,409,417	+ 22	118,277,343	105,322,800	28,173,052	29,624,082	90,104,291	75,698,718	+ 19
C. St. P. M. & O.	4,747,915	3,585,456	+ 32	10,959,690	8,037,093	5,815,763	5,188,571	5,143,927	2,848,522	+ 81
D. & H.	5,706,742	5,243,029	+ 9	14,666,761	13,539,791	8,134,265	6,406,474	6,532,496	7,133,317	− 8
D. L. & W.	12,638,791	11,664,089	+ 8	26,649,186	23,045,765	11,663,586	10,166,160	14,985,600	12,879,605	+ 17
D. & R. G. W.	21,441,512	29,774,057	− 28	40,319,903	47,881,024	20,353,741	22,280,693	19,966,162	25,600,331	− 22
D. M. & I. R.	25,797,284	16,587,562	+ 56	31,642,951	20,983,783	14,472,937	12,594,792	17,170,014	8,388,991	+105
E. J. & E.	19,539,898	13,757,173	+ 42	24,271,419	17,766,324	13,145,794	7,932,996	11,125,625	9,883,328	+ 13
Erie	28,839,017	22,196,945	+ 30	52,504,404	45,249,721	31,266,250	26,864,427	21,238,154	18,385,294	+ 16
G. T. W.	1,129,249	1,369,173	− 12	9,043,367	8,242,904	8,372,986	9,115,763	670,381	−872,859	†
G. N.	51,224,532	39,557,438	+ 29	89,561,538	76,276,369	50,398,177	34,342,146	39,163,361	41,934,223	− 7
G. M. & O.**	11,947,438	18,217,516	− 34	27,163,206	32,969,257	15,233,870	16,628,772	11,929,336	16,340,485	− 27
I. C.	69,659,214	74,627,611	− 7	105,033,384	113,351,974	68,402,378	68,382,739	36,631,006	44,969,235	− 19
L. V.	10,465,885	11,920,278	− 12	23,858,147	25,448,310	11,660,154	13,769,763	12,197,993	11,678,547	+ 4
L. I.	4,322,275	4,583,132	− 5	13,224,464	12,289,741	11,901,597	8,699,434	1,322,867	3,590,307	− 63
L. & N.	42,085,723	48,654,860	− 14	77,880,316	79,338,832	33,850,543	35,974,083	44,029,773	43,364,749	+ 2
M. St. P. & S. Ste. M.	12,293,963	13,157,213	− 7	19,221,392	19,173,332	8,582,005	7,362,146	10,639,387	11,811,186	− 10
M-K-T	9,388,959	11,368,699	− 17	20,085,396	22,335,089	16,021,335	17,301,441	4,064,061	5,033,648	− 19
M. P.	56,560,418	54,255,237	+ 4	89,603,655	86,379,841	33,390,499	36,550,881	56,213,156	49,828,960	+ 13
N. Y. C.	102,238,515	121,670,568	− 16	206,023,493	247,186,085	135,629,003	118,101,983	70,394,490	129,084,102	− 45
N. Y. C. & St. L.	9,520,783	17,326,435	− 45	25,633,895	32,009,046	19,345,333	13,732,220	6,288,562	18,276,826	− 65
N. Y. N. H. & H.	44,804,714	53,177,143	− 16	79,303,206	74,417,102	29,005,855	25,907,905	50,297,351	48,509,197	+ 4
N. & W.	56,763,569	54,476,712	+ 4	93,196,960	87,716,135	43,750,400	40,962,872	49,446,560	46,753,263	+ 6
N. P.	36,018,819	36,256,042	− 1	72,249,865	74,016,525	28,990,636	27,450,604	43,259,229	46,555,921	− 7
P. R.R.	106,536,272	149,444,806	− 29	241,682,652	265,786,196	166,017,380	152,402,528	75,665,272	113,383,668	− 33
P. & L. E.	15,384,429	12,004,200	+ 28	21,524,004	18,011,252	10,698,141	8,046,180	10,825,863	9,965,072	+ 9
Reading	20,341,605	19,313,349	+ 5	39,383,213	38,233,405	28,516,586	5,667,917	10,866,627	12,565,488	− 14
St. L.-San Francisco	41,368,114	42,209,366	− 2	57,672,700	56,962,510	21,939,146	7,581,760	35,733,554	39,380,750	− 9
St. L. Southwestern	10,399,812	22,605,117	− 54	20,547,136	31,751,239	11,148,139	10,436,298	9,398,997	21,314,941	− 56
S. A. L.	25,228,286	42,752,136	− 41	44,746,425	62,890,799	18,086,684	21,047,608	26,659,741	41,843,181	− 36
Southern	54,148,311	66,362,792	− 18	86,228,027	101,444,920	45,431,315	52,834,906	40,796,712	48,610,014	− 16
S. P. System	125,675,533	124,603,269	+ 1	225,795,903	221,704,777	116,347,219	128,164,476	109,448,684	93,540,301	+ 17
T. & P.	15,081,911	22,378,796	− 32	26,932,958	34,032,347	10,979,294	14,548,126	15,953,664	19,484,221	− 18
U. P.	131,446,463	219,580,736	− 40	209,771,004	289,439,699	99,787,655	102,288,273	109,983,349	187,151,426	− 41
Wabash	25,402,948	28,560,140	− 11	38,742,791	39,858,710	24,044,794	24,325,394	14,697,997	15,533,316	− 5

* Includes the Pere Marquette. ** Includes the Alton. † Current liabilities exceeded current assets in 1946.

Shortage of scrap is one of the obstacles that steel men claim must be overcome before there is any great increase in steel production

BASIC MATERIALS, FUEL, STILL SHORT

Materials supply is much improved from a year ago, but basic supplies still cause headaches

By J. W. MILLIKEN
Associate Editor, Purchases & Stores Department

This time a year ago found prospects in the materials and supplies field anything but rosy, with many items of importance for the railroad buyers in short supply. Many of these shortages have been cleared up, and, despite price increases which also have plagued the industry, this is some relief. Unfortunately, some basic items still promise to give the railroads trouble throughout 1948. Shortages of steel and products made therefrom, lumber and fuel oil constitute the chief threats to the purchasing officers' peace of mind.

It is true, to be sure, that in items whose availability and delivery time have improved during 1947 shortages have not been entirely eliminated by any means. For instance, chemicals for water treatment, cement, paint and switch ties, which were in great demand last year, are no longer items for most purchasing agents to get grey about, but in some areas they still constitute a real headache. Naturally, the farther away from the main source of supply the prospective purchaser is, the greater the difficulty. There is, incidentally, little reason to believe any of these items will again cause purchasers sleepless nights, except as prices continue to increase, which seems not unlikely.

Basic products, such as lumber, fuel, crossties and, particularly, steel and products made from it, are the items that promise to give the purchasing agent the greatest overall troubles. Procurement of rail, fastenings, hardware and tools is likely still to be the chief difficulty that the railroads must face in the year of '48, since despite a few predictions that supply and demand for steel will balance this year, most people in the industry think that it will be a year or two before there will be any substantial increase in production, and no lessening of demand is in sight. Another factor which strengthens this belief among manu-

facturers who use steel is the purchase during the past 12 months of 15 sizeable, though not major, steel producing and fabricating plants by manufacturing concerns and syndicates. Granting that an improvement in the scrap situation may help to improve conditions somewhat, prospects for a buyer's market in steel, and articles made from it, such as nuts, bolts, screws and other hardware, rail, machine and hand tools, as well as much electrical equipment, still seems more than a year away. An expected shortage of copper, especially in the first quarter of the year, will not ease the electrical equipment supply situation.

Only in one direction does there seem to be any relief in sight for the railroads, where steel is concerned. The year 1948 promises to bring about at least a mitigation, if not a solution, of the freight car shortage, with car production possibly approaching the 15,000 per month level, and more steel for car repairs. Incidentally, it is interesting to note that most of the purchasing agents questioned state that the steel companies held pretty well to delivery times on items for which they took orders. How much this increase of steel for these programs will affect other items made from steel it is impossible to predict.

Despite record production of lumber most railroads still report that they are not getting enough, that the grade is poor, and that most of it is not properly seasoned. With the supply already short of what is needed and the building boom showing no signs of slowing down, prices probably will be anything but steady, while the difficulty in procurement cannot be expected to be eased a great deal.

All indications point to an increase of about 8 per cent in the demand for crossties in 1948. That purchasers will pay somewhat higher prices is almost certain, due to creosote shortages, increasing wages and the diminishing supply of easily available saw timber fit for crossties. Some temporary shortages may be expected, though not of major proportions.

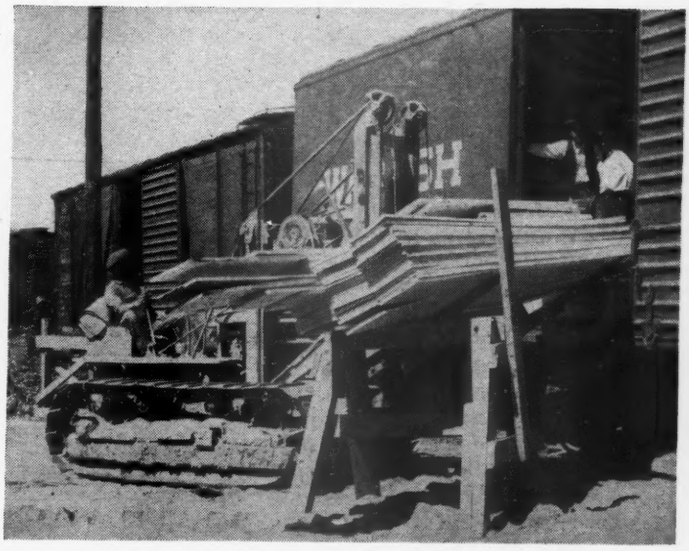
Fuel, especially for heavily Dieselized roads, gives promise of being a major embarrassment to the railroads during 1948. Despite large exports of coal, which, however, amount to only about 5 per cent of the bituminous production of the United States, there is more than a faint possibility that the demand and supply may balance before mid-year. This may inaugurate a period in which the railroads may begin to secure the grade of coal they want and need. But for those roads which rely on oil for fuel, be it for the steam locomotive or the Diesel, the picture is far from bright, despite the voluntary rationing programs being imposed on consumers by many oil producers. Any great expansion of the domestic industry is not to be looked for, say producers, due to the unavailability of steel for construction. The railroads, whose consumption of Diesel fuel is estimated to have risen about 42 per cent from 1946 and shows signs of increasing further in 1948, may find procurement tough going. Oil imports may ease the supply situation slightly. Although grave shortages are not expected, there may be periods when it will be necessary to cut into none too comfortable inventories. The price picture, too, shows few bright spots.

The year 1948, therefore, does not promise to fulfill the purchasing agent's dream of a heaven where there is a buyers' market in everything.

Top — Great demand for lumber for building purposes during the coming year will keep it on the list of commodities to be carefully watched

Middle—Rail is only one of the items made from steel which promises to be scarce this year. Only carbuilding material seems likely to be adequate

Bottom—Large inventories of distillate fuels can not be expected while there is little more than enough to keep the wheels of industry turning



1947—ANOTHER ROUND OF WAGE BOOSTS

By R. G. LEWIS
Associate Editor

When the year 1947 was ushered in, 1,359,000-odd railroad workers were receiving a greater share of the railroads' total operating revenues—55.4 per cent—than they had ever received before, except during the post-World War I year of 1920. Total wage payments of the Class I railroads in 1946 amounted to $4,170,-163,790, an all-time record high. Nevertheless, during 1947 the railroad pay scale was given another boost amounting to 15½ cents an hour for the non-operating employees and for operating employees represented by two of the "big five" transportation brotherhoods, plus (in the latter case) some changes in working rules. As a result, wages paid in 1947 will amount to an estimated $4,350,000,000 (based on actual compensation paid during the first ten months of the year).

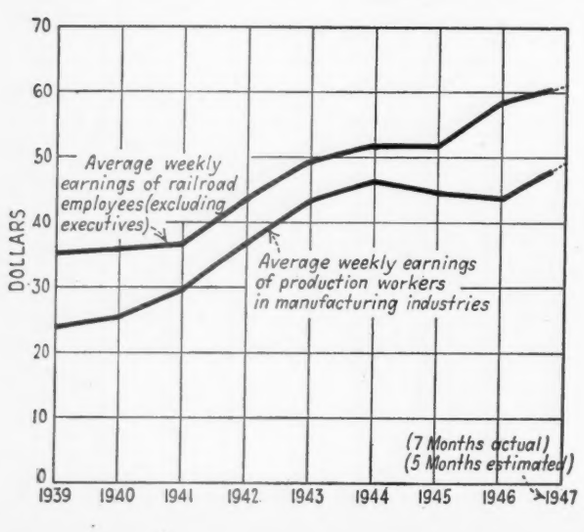
The year's round of wage boosts was effected by settlements reached with 19 of the 22 standard railroad brotherhoods. On September 2 an arbitration board awarded 15½ cents an hour to approximately one million non-operating railroad men, represented by 17 unions. On November 14 two of the "big five" transportation brotherhoods came to an amicable agreement at conferences in Chicago, in which the trainmen and conductors received a similar wage increase, 15½ cents an hour, together with favorable "non-featherbed" concessions on certain amendments to their working rules. The remaining three brotherhoods, representing enginemen, firemen, and 7 per cent of the switchmen, did not consider this offer satisfactory, and as this issue goes to press these "hold-out" unions have circulated strike ballots, and the National Mediation Board, whose services were invoked by the carriers, is attempting to bring about an amicable settlement.

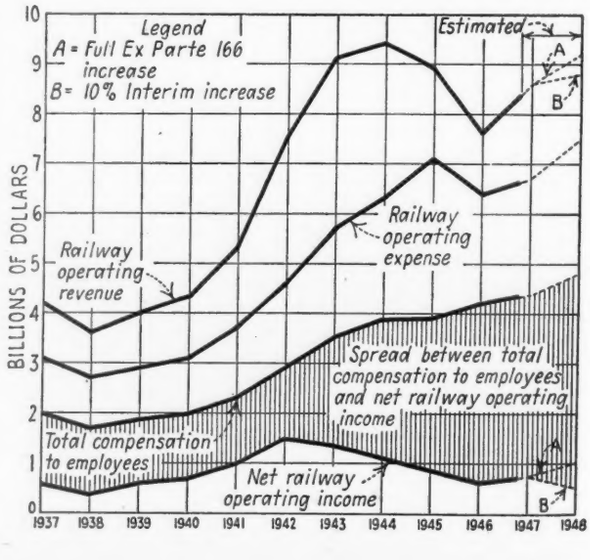
The 1947 wage increases embraced 90 per cent of the total number of railroad workers. They were stacked upon the January 1 and May 22, 1946, increases, totaling 18½ cents an hour, which resulted from the decision of an arbitration board and a recommendation of an "emergency board." These 1946 increases were granted chiefly to match those won by unions in other industries to maintain their "take home pay," as the latter were securing a shortened workweek. Railroaders, however, continued to enjoy the same level of employment as before, so that their position relative to that of production workers in industry was thereby further enhanced during 1946, as shown in the chart. It will be noted that the spread in average weekly compensation favoring the railroad workers narrowed somewhat during 1947, because the railroaders received their most recent pay increases in the latter part of the year.

In passenger-train service, wages paid to road passenger employees for each 1,000 revenue passenger-

Below left.—Average weekly earnings of railroad employees continued at a higher level than those of production workers in manufacturing industries. In postwar January, 1947, the difference favoring the railroad workers was slightly better than $10 weekly—about the same as in prewar 1940

Below right.—Total compensation to employees shows a continuous increase since 1938, while a slight increase during 1947 represents the first favorable trend in net railway operating income in the past five years. (Revenue and income estimates for 1948 are on two bases: (A) that which will accrue if the railroads are granted the full increase in freight rates sought in Ex Parte 166 and supplemental petitions, and (B) that which will accrue from the present interim increase of 10 per cent.)





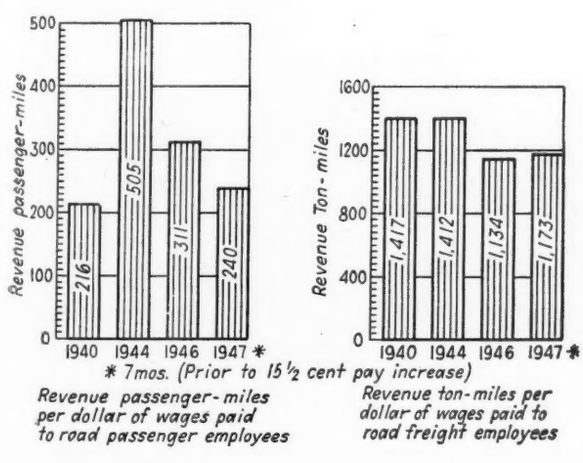
miles during the first seven months of 1947—before the 15½-cent increase was imposed—rose to $4.17—almost one dollar greater than the 1946 figure, and more than double the figure for 1944. Revenue passenger-miles for each dollar paid to the passenger-train service men dropped from 505 in 1944 to 311 in 1946, and to 240 in the first seven months of 1947. In freight-train service, wages paid to road freight employees per 1,000 revenue ton-miles were 85 cents during the first seven months of 1947. Except for the ratio of 88 cents paid in 1946, the 1947 figure was the highest since 1927, and represented the cost prior to the November 1 pay increases. Ton-miles moved per dollar of wages paid to road freight crews increased during the first seven months of 1947 to 1,173, a slight improvement over the 1946 figure of 1,134.

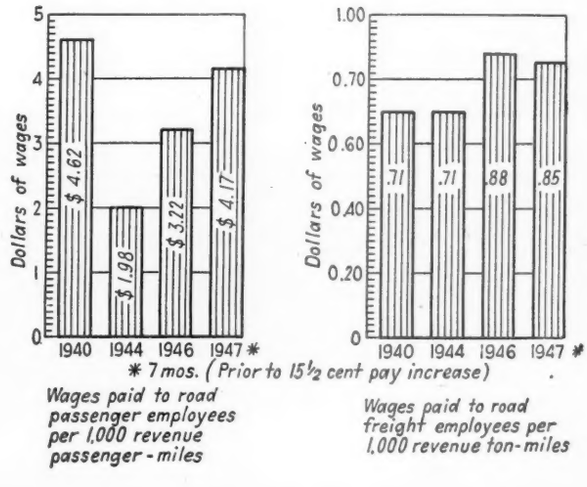
Except for local and seasonal situations, widespread shortages of railroad labor ceased to exist. The Railroad Retirement Board no longer found it necessary to compile shortage figures on a national basis, and preparation of these statistics is now confined to local field offices. Payment of unemployment benefits to railroaders laid off was likewise local and seasonal, so that at the end of 1947 a satisfactory balance of labor obtained on most roads.

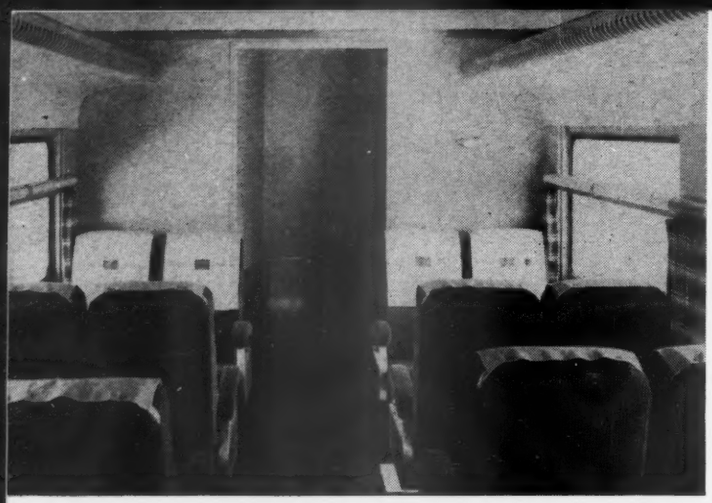
During 1947 the railroads cooperated in highly effective newspaper advertising which called to the public's attention the absurdity of some of the union-proposed rule changes. One of the advertisements, entitled "44 Ways to Get Something for Nothing," advised the reader "It's to your interest to know about the proposed 'featherbedding'!" and was graphically illustrated by a coach coupled between the last car and caboose of a freight train with 15 employee "sitters" at the windows—"going along for the ride at full pay."

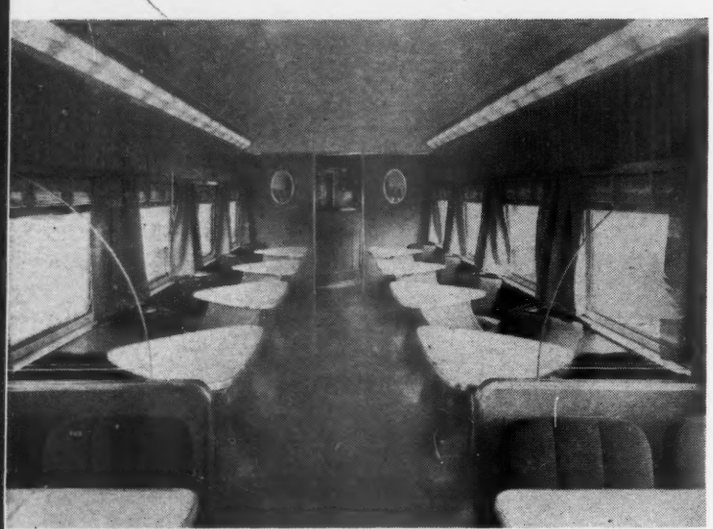
Toward the end of the year, the brotherhoods launched active "public relations" campaigns. The Brotherhood of Railroad Trainmen, after a series of test radio programs over an Amarillo (Tex.) radio station, commenced regular weekly newscast programs over a nationwide hook-up on November 15. Members of the Railway Labor Executives Association cooperated in the organization of a "Railway Labor's Political League," to promote candidates for public offices who, in their opinions, would further the cause of the railroad brotherhoods.

During the first eight months of 1947, weekly earnings of road passenger conductors averaged $91.75 and those of road passenger engineers averaged $103.55. A 15½-cent hourly increase effective November first was acceptable to the conductors' union, but declined by the engineers' as "wholly unsatisfactory"









SOME NEW PASSENGER TRAINS OF 1947

Pictorial review of outstanding de luxe trains inaugurated or re-equipped—New York Central 64-seat diners have kitchens and lounges in separate cars

By **C. B. PECK**
Mechanical Department Editor

(CAPTIONS READ TOP TO BOTTOM)

Deflector vanes in the upper window direct daylight up against the luggage rack and shut out the sun glare on coaches of the "Nancy Hanks II" built by the American Car & Foundry Co. for the Central of Georgia.

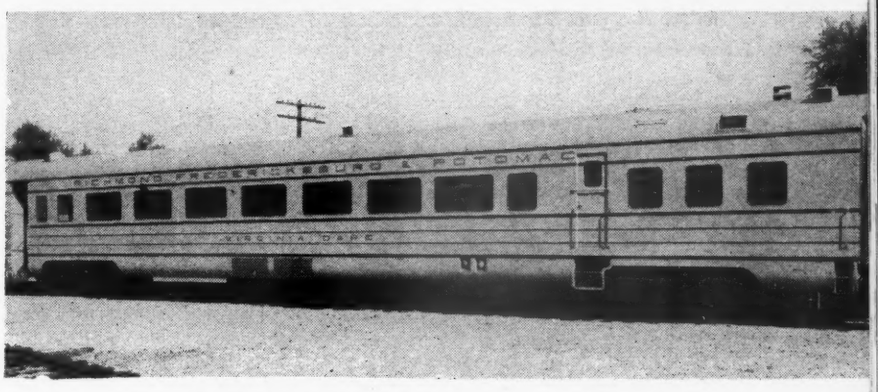
The Vista Dome, a feature of the coaches and parlor-observation car of the newly equipped "Twin Zephyrs", built for the Chicago, Burlington & Quincy by the Budd Company

One of the restaurant-lounge cars on three re-equipped trains of the Boston & Maine-Maine Central. The range is against the outside of the car, sinks and cupboards against the corridor partition. Built by the Pullman-Standard Car Manufacturing Company

Dining under the sky—one of the attractive uses of space demonstrated by General Motors in its "Train of Tomorrow"

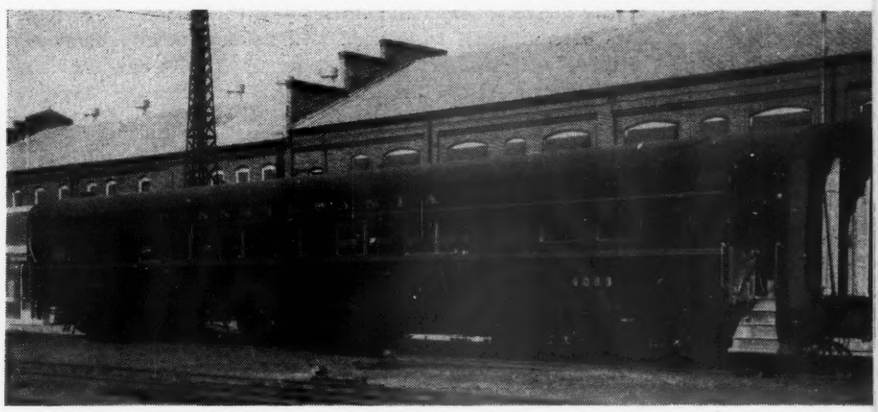
(CAPTIONS READ TOP TO BOTTOM)

The observation car for one of the Baltimore & Ohio "Cincinnatians"



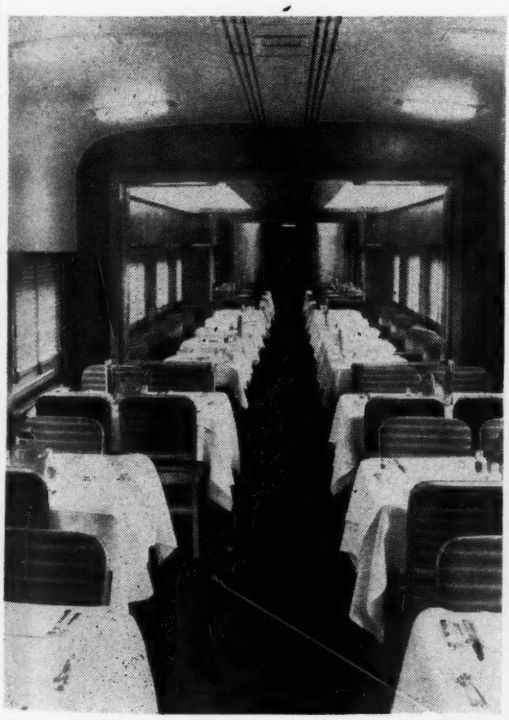
The parlor-cafe car of the "Old Dominion" daylight train delivered to the Richmond, Fredericksburg & Potomac by the American Car & Foundry Co.

For Pennsylvania overnight coach trains

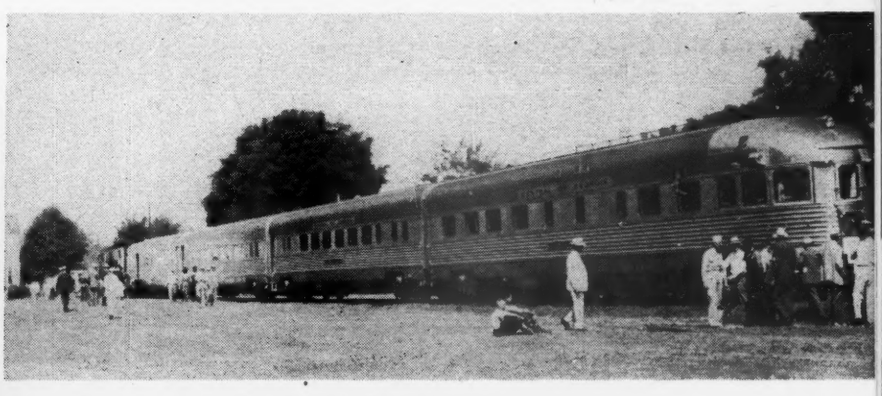


The "Man-O-War" built by the Budd Company for the Central of Georgia, on its exhibition tour

Looking toward the pantry in the kitchen of the New York Central two-car dining-room kitchen-lounge unit. The kitchen is 41 ft. long



Dining room of the New York Central two-car dining-room kitchen-lounge unit. Tables seat 64 passengers



1948 WORK EQUIPMENT PROSPECTS GOOD

Many factors kept some roads out of the market on the usual scale in 1947, but need for further mechanization of roadway and structures forces continues to grow

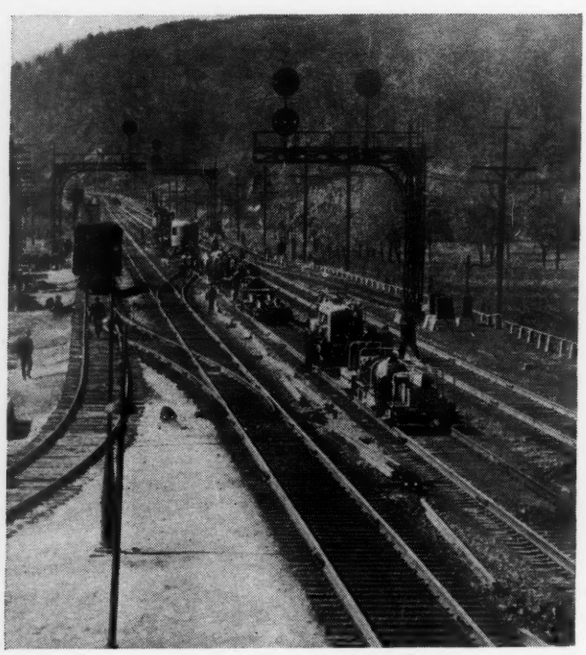
By **NEAL D. HOWARD**
Western Editor

Nineteen hundred and forty-seven was another big year in the purchase and use of power tools and machines by the roadway and structures departments of the railways. But it was a confused year, with many factors affecting the numbers of orders placed, actual deliveries, and the intensity with which many types of equipment were used. In no previous year was there greater acceptance among engineering and maintenance officers of machines of all kinds for carrying out their work, and, in the light of the largely increased wage rates prevailing among all classes of maintenance-of-way department employees, never was there a period when the value of such machines was more apparent.

Specifically, based upon figures furnished to *Railway Age* by all but five of the more important roads of the United States, Canada and Mexico, these roads in 1947 ordered 9,500 units of power tools and machines of all kinds for use in maintenance of way and structures work, at a total estimated cost of approximately $19,100,000. This compares with the purchase of 9,939 units in 1946, at an estimated cost of $15,400,000, and of 11,733 units in 1945, at an estimated cost of $17,500,000. Thus, while purchases, as represented by orders placed, were down somewhat in 1947 as compared with 1946, and off considerably from the record purchases in 1945, they were larger than in any previous year except 1944, when the roads purchased 9,984 units at a total cost of approximately $14,400,000. Furthermore, in terms of equipment actually delivered,

Roadbed grouting to stabilize soft track has brought a lot of new equipment to the right-of-way

Rail laying is one of the most highly mechanized of maintenance-of-way operations



it is believed that total purchases in 1947 exceeded by a considerable margin the number of units ordered, as many roads accepted delivery in 1947 of units ordered in 1946, and even in 1945.

Earlier annual purchases of maintenance-of-way work equipment, beginning in 1937, the first year of record, were as follows: 1937—3,310 units, $5,000,000; 1938—1,376 units, $2,000,000; 1939—3,547 units, $6,000,000; 1940—5,414 units, $7,250,000; 1941—8,007 units, $10,500,000; 1942—7,612 units, $10,270,000; and 1943—8,507 units, $12,300,000.

One factor that held down orders for a number of types of equipment was the slowness of deliveries, or the inability to get the equipment at all—many orders being accepted only on a 12 to 18 months' delivery basis. Under these circumstances, many maintenance officers refused to place orders, especially when they were still awaiting long-delayed deliveries on previously ordered equipment of the same type. Furthermore, some officers flatly refused to execute purchase orders containing price escalator clauses, contending they could not afford to make commitments as to price blindly, from six months to a year in advance of deliveries.

It was true, too, that many equipment builders in the throes of redesigning or completely remodeling their products were not in a position to make sales; also many railroads held back placing orders awaiting new models or adequate service tests of their performance.

Indications Point to Big Year Ahead

As in 1947, many factors will affect the volume of equipment purchases in 1948. Some of these cannot be foreseen and may upset the sanest estimate at the start of the year, but several definite influences favoring continuing large purchases—even larger than in 1947—seem certain to prevail. One of these is the large amount of deferred maintenance in the tracks and structures of the railways, continuing from the war period—and in some instances enlarged since the war—which must be overcome at the earliest practicable moment, especially in the light of the sustained high volume of traffic being handled.

Another is the increasing willingness on the part of equipment builders to redesign existing equipment or to build new equipment to meet the needs and specifications of the railways—and the fact that much of the development work carried out in 1947 will be translated into orders in 1948. Still another is the expressed plan of a number of roads which were largely out of the equipment market in 1947 to re-enter the market in a big way in 1948—one indicating that it expects to purchase ten times as much equipment in the year ahead as in the past year.

Must Offset High Labor Costs

But possibly the greatest overall factor that portends large equipment purchases in 1948, and beyond, is the high cost of labor, which is making it imperative that the mechanization of work operations be carried out to the fullest extent possible to increase production and hold down unit costs.

Thus, assuming a high volume of traffic and adequate earnings for the railways in 1948, continued large purchases of power tools and machines are a certainty, restricted only by the ability of the roads to get the materials—largely steel products—to carry out large programs of work, and the ability of the equipment builders to get the necessary raw materials from which to build and make deliveries. And one other thing seems certain—that those companies that are willing to design and build their products to meet the specific needs of the maintenance-of-way and structures forces, and that will work with the railways to meet their requirements, will get the orders.

Many roads are making extensive use of off-track grading equipment for a wide range of work

Large capacity, off-track air compressors used for surfacing work are adapted to many other operations in off-seasons

Gravity retarder classification yard completed by the Union Pacific at Pocatello, Ida., in 1947

UPKEEP OUTLAY AND COSTS SHOW INCREASE

Rail renewals rise moderately in 1947 but tie insertions reflect little change—Construction activity responds to need for major improvements

By **MERWIN H. DICK**
Engineering Editor

Activities of the maintenance and construction departments of the railroads went forward on a relatively even keel in 1947 if one were to consider only the major indices, none of which show more than a moderate deviation from the previous year. However, beneath this apparently untroubled surface was an undercurrent of developments that produced many a wrinkled brow, including increasing labor rates and prices for materials, nagging shortages of labor and certain materials, and failure of labor efficiency to register any significant improvement. Although construction and maintenance activity continued at a moderately high rate during the year, with some categories of work showing increases, the cumulative effect of these various influences acted to prevent the performance from reaching the level indicated by the large amount of traffic being carried, the need for improving the properties for better service, and the necessity of making up the deferred maintenance that accumulated during the war years.

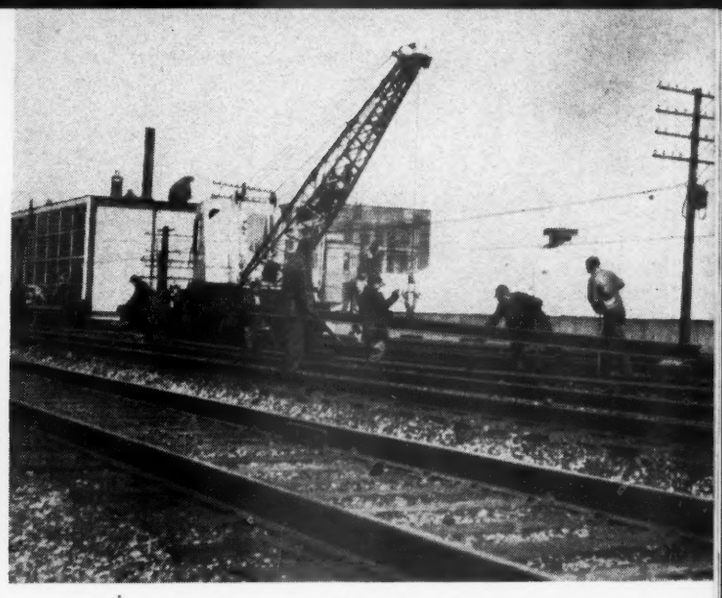
Upkeep Outlay Rises

Expenditures for maintenance of way and structures continued on the high plateau that was reached during the war years, and rose somewhat above 1946. Based on official figures for the first nine months of the year, it is estimated that the total expenditures of the Class I railroads for the maintenance of way and structures in 1947 amounted approximately to $1,210,000,000. An increase of 5.2 per cent over 1946, this figure has been exceeded only twice before in history, namely, in 1944 and again in 1945. The size of this figure gives 1947 the distinction of being the fifth consecutive year in which total expenditures for maintenance have exceeded the billion mark. Prior to 1943 there was only one year in the history of the railroads in which these expenditures exceeded a billion dollars, and that was 1920.

The annual expenditures of the Class I railroads for maintenance of way and structures for the 10 years ended with 1946, the latest year for which complete figures are available, as well as the average annual expenditures for the period 1925-29, are shown in one of the tables. Included also are figures showing the manner in which the total for each year was distributed among the various primary accounts.

In using the dollar expenditures for 1947 as an indicator of activity, consideration must be given to the factors that have tended to inflate the costs of doing maintenance work. These costs showed further increases in 1947. Among them were the hourly wages of maintenance-of-way employees, which were increased 15½ cents an hour on September 1, making a total increase of 34 cents an hour since January 1, 1946. Furthermore, the prices of rails and ties, along with other materials used by the maintenance forces, rose further during the year. As the result of increases of $5.60 per ton in 1947, the cost of rail is now $61.60 a ton. As the result of increased prices for ties and the cost of labor to insert them, it is generally estimated that the total cost for inserting a new tie in track is now between $4.00 and $5.00, or more than double what it was before the war.

When these increased costs are considered in connection with the substantial amount of maintenance work done in 1947, it is somewhat surprising that there was not a larger increase in the total expendi-



Construction view of a new bridge across the Kanawha river at Point Pleasant, W. Va., which was completed by the Baltimore & Ohio during the year

Rail-renewal work went forward at a faster tempo last year

tures. Unquestionably the more extensive and intensive use of power tools and machines is playing an important part in helping to keep maintenance costs down. A straw in the wind in this connection is provided by the experience of one road which reports that, as the result of improved types of equipment in use, a gang of 120 men can now lay as much rail per day as a gang of 150 men could five years ago.

For whatever significance there may be attached to the development, it can be reported that the maintenance ratio (maintenance expenses expressed as a percentage of operating revenues) showed a slight drop in 1947. Specifically, the maintenance ratio for the first nine months of the year was 14.1, which compares with 15.1 for 1946 and 15.8 for 1945. However, the maintenance ratio is still substantially higher than the general average that prevailed before it showed a sharp upward spurt in 1945. For instance, the average figure for the ten years ended with 1944 was 11.7.

More Rail Is Laid

Probably the most encouraging index of maintenance activity in 1947 is that showing the quantity of rails renewed. One of the tables shows the gross tons of new rail laid in replacements by the Class I railroads for each year since 1927. For 1947, the amount shown is 1,422,000 gross tons, which is an estimate based on figures supplied to *Railway Age* by practically all Class I railroads. The figure for 1947 represents an increase of 198,000 gross tons, or 16.2 per cent, as compared with 1946. Furthermore, with the exception of the years 1944 and 1945, rail renewals last year were higher than for any year since 1930, when they amounted to 1,517,002 tons.

Unlike rail renewals, the number of crossties that were inserted in track for replacement purposes in 1947 showed a slight decline. One of the tables gives the number of crossties that the Class I railroads of the country have used for renewal purposes in each year since 1928, the figure for 1947 again being an estimate based on figures furnished by most of the Class I roads. This figure shows that about 37,400,000 ties were inserted in that year, a decline of 162,000, or 0.4 per cent, as compared with 1946. Thus, tie renewals were brought to the lowest level that has prevailed for many years, being only slightly above the low point of the depression, reached in 1933 when 37,295,716 crossties were inserted in track.

The slight decline in crosstie renewals, in the face of an increase in the amount of rail laid, presents something of an enigma. Possibly a partial explanation lies in the fact that some roads are now in the trough of the renewal cycle. It is also possible that, in view of the sharp increase that has occurred in the cost of a new tie in track, there may have been a tendency to reduce programs somewhat to keep within budget allotments. Furthermore, on at least some railroads the shortage of labor has been an impeding factor in tie renewals, the tendency being in some cases to give rail renewals priority where the amount of labor available is not sufficient to permit all programmed work to be carried out.

No review of the maintenance of way activities of the railroads during 1947 would be complete without reference to the manpower shortage. Due to the high rate of employment in industry generally, many railroads have not been able to obtain the full quota of men needed for maintenance work, especially in and about industrial centers. As a consequence some of them have had to use a higher proportion of workers of the itinerant type, even to the extent of using such labor to fill gaps in the section forces.

Factors Affecting Outlook

Turning to a consideration of prospects for 1948, it is apparent that these will be governed by a number of factors over which the railroads have little or no control. Before discussing such factors, however, it will be worthwhile to examine the prospective needs without consideration of the ability to do the necessary work. In the first place, every indication is that, barring major dislocations in industry or other unforeseen developments, railway traffic is expected to remain at a high level, and this fact in itself, along with the need for a high standard of maintenance in the interest of better service, and the existence of large amounts of deferred maintenance, is sufficient to establish the necessity of a high rate of maintenance activity.

Expenditures for Maintenance of Way and Structures, Class I Railways

(Thousands)

	Average 1925-1929 (Inclusive)	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946
Superintendence	$57,262	$39,801	$38,935	$39,072	$40,231	$43,407	$49,461	$57,592	$63,790	$65,590	$72,538
Roadway Maintenance	83,698	42,017	37,219	36,112	38,372	47,923	69,701	110,764	121,072	118,453	93,495
Tunnels	2,608	1,709	1,256	1,210	1,374	1,780	4,529	3,668	4,222	3,734	2,919
Bridges, culverts, etc.	43,471	26,268	24,200	24,782	26,514	31,754	40,801	44,356	51,227	48,540	43,272
Ties	114,859	59,799	53,762	59,910	58,353	64,928	75,141	84,982	100,446	96,314	89,620
Rails	47,402	20,412	17,406	22,065	22,736	24,684	25,199	33,146	39,544	42,831	38,868
Other Track Materials	48,354	30,228	22,817	29,670	33,428	38,711	40,091	50,541	57,220	60,955	52,887
Ballast	19,379	12,362	7,744	10,343	11,592	15,093	20,107	25,168	28,493	31,787	24,121
Track Laying and Surfacing	211,067	121,113	103,420	114,932	117,839	156,142	212,594	289,636	366,999	356,823	326,252
Fences and Snow Sheds	5,831	†3,689	†2,939	†3,235	3,408	3,930	4,031	†5,877	†8,121	†6,310	†6,513
Crossings and Signs	13,115	*	*	*	*	*	*	*	*	*	*
Buildings	79,000	47,757	34,315	41,018	46,852	60,412	80.663	102,680	114,513	117,714	96,047
Water Supply	10,444	6,182	4,672	5,207	6,020	6,736	8,561	9,680	11,473	11,129	9,521
Tools and Equipment	18,230	15,408	11,456	13,720	15,434	18,971	20,892	23,397	28,664	31,244	30,318
Injuries	5,907	3,303	2,806	2,929	3,220	3,547	4,642	5,903	6,856	7,453	7,050
Removing Snow, Ice and Sand	9,947	6,655	5,239	6,110	9,030	5,995	8,739	12,798	14,882	27,729	11,828
Miscellaneous	78,449	58,891	51,961	56,516	29,202	79,076	131,206	248,093	245,770	384,700	244,991
	$849,021	$495,594	$420,147	$466,831	$497,031	$603,088	$796.358	$1,108,281	$1,263,092	$1,411,306	$1,150,241

Note: Miscellaneous includes such items as signals and interlocking, depreciation, deferred maintenance, amortization and unclassified charges.

* Not shown separately since 1935.

† Includes signs as well as fences and snow sheds.

With reference to specific factors that will have a bearing on the amount of work to be done in 1948, one of these will be the ability of the mills to produce and deliver rail. In this respect indications are that the picture will be about the same as it was in 1947, with the steel mills booking orders for rail for 1948 on about the same basis as for the previous year. Regarding ties, the prospects are somewhat more favorable. According to a recent survey the railroads of the country plan to use approximately 42,000,000 crossties in 1948, or substantially more than were inserted in 1947.

Obviously, the entire maintenance picture in 1948 will be colored, one way or the other, by the action that the Interstate Commerce Commission takes regarding the railroads' present request for increased freight rates and by further possible increases in wage rates and prices for materials. The situation in this respect is symbolized by the experience of one road that set up a maintenance budget for next year involving the same number of work units that were performed in 1947. To carry out this budget it was found that an appropriation 18 per cent greater than the actual expenditure for 1947 would be needed.

Improvement Work Up

In regard to construction the year 1947 was relatively active. This activity reflects a realization on the part of the railroads that property improvements on a large scale are imperative if they are to render the type of service that is demanded by competitive factors. Not only is there still a large backlog of improvement work that accumulated during the war and prior years, but the need for additional work is constantly being created due to changes in operating conditions, the obsolescence of existing facilities and other factors.

The extent of the property improvement work that the railroads carried out in 1947 is indicated by figures recently released by the Interstate Commerce Commission. Based on actual expenditures for the first nine months of the year, plus estimates furnished to the commission for the last quarter, it was estimated that the Class I line-haul railroads of the country would spend a total of about $282,857,000 in the form of gross capital expenditures for improvements to roadway and structures during the year. This represents an increase of $51,857,000, as compared with 1946. However, because of increased costs of labor and materials, the increase in the amount of work that was done was not as great as would otherwise be indicated by these figures. Be that as it may, the dollar value of the betterment work carried out in 1947 was greater than for any year since 1931, when it amounted to $288,807,000. A few of the major undertakings in progress in 1947 are mentioned below.

Some Large Projects

Line-improvement undertakings comprised by far the largest category of betterment projects undertaken or carried on by the railroads during 1947. The largest single project of this type is one the Norfolk & Western has under way on its main line west of Bluefield, W. Va., at a cost of more than $11,912,000. A similar project in progress on the Union Pacific near Aspen, Wyo., will cost $7,700,000. Another large undertaking is a system-wide curve reduction program being carried out on the Nashville, Chattanooga & St. Louis at a cost of $3,600,000. During the year the Chicago, Rock Island & Pacific brought to a conclusion its $15,000,000 line-improvement undertaking between Chicago and Kansas City, Mo., and the Chesapeake & Ohio also completed a $5,500,000 job involving the Mountain subdivision on its line between Washington, D. C., and Cincinnati, Ohio.

Next to line-improvement work, yard and terminal construction and modernization projects ranked highest in the dollar value of the work being done. In this category of work the Union Pacific completed a large new classification yard at Pocatello, Ida., at a cost of $2,619,000, while the Baltimore & Ohio was completing two large projects, one involving its Cone yard at East St. Louis, Ill. ($2,865,000), and the other involving its Barr yard at Chicago, where the cost was $1,856,000 for the yard facilities and $563,000 for engine terminal and related structures.

Among the large bridge-improvement projects under

Rail Applied in Renewals—Class I Roads

	Gross Tons		Gross Tons
1928	2,080,277	1938	599,752
1929	1,958,489	1939	878,643
1930	1,517,002	1940	998,914
1931	984,900	1941	1,197,593
1932	394,536	1942	1,192,225
1933	403,254	1943	1,270,120
1934	631,093	1944	1,561,638
1935	582,794	1945	1,613,548
1936	921,298	1946	1,223,665
1937	1,029,861	1947	1,422,000*

* Estimated

Crossties Applied in Renewals—Class I Roads

	Gross Tons		Gross Tons
1928	77,370,491	1938	41,363,224
1929	74,679,375	1939	45,088,278
1930	63,353,828	1940	43,620,653
1931	51,501,659	1941	47,224,593
1932	39,190,473	1942	48,616,228
1933	37,295,716	1943	45,439,512
1934	43,306,205	1944	48,032,634
1935	44,351,900	1945	43,912,213
1936	47,361,015	1946	37,562,283
1937	47,729,538	1947	37,400,000*

* Estimated

way or completed during the year was one involving the reconstruction of the bridge of the Baltimore & Ohio across the Kanawha river at a cost of $1,890,000, the building of a new bridge across the Schuylkill river by the Reading at a cost of $1,118,000, and the construction by the Atchison, Topeka & Santa Fe of a double-track bridge across Canyon Diablo in Arizona.

The construction of Diesel repair and servicing facilities was also very much in the limelight, with the Boston & Maine carrying out a $1,000,000 project at Boston, Mass., and the Chicago & North Western initiating a $1,800,000 job at Chicago. Progress was also made on the extensive undertakings of the Pennsylvania at Harrisburg, Pa., and Enola.

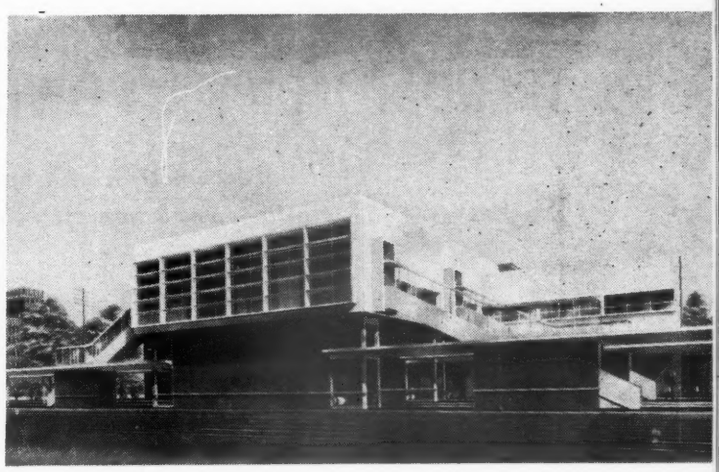
Station improvement and modernization work came in for much attention last year, with several projects being under way at the end of the year, each of which will entail expenditures of $1,000,000 or more. Probably the largest single railroad improvement project under way in any classification was one involving the improvement and expansion of coal and ore-handling facilities at Toledo, Ohio, at a cost of $18,500,000. This was being carried out by the Lake Front Dock & Railroad Terminal Company, a subsidiary of the New York Central and the Baltimore & Ohio. In this same category, the Baltimore & Ohio completed a $3,700,000 project involving the construction of coal-handling facilities at Lorain, Ohio, and the Norfolk & Western carried forward its project at Lambert Point, Va., for the construction of an extensive new pier, at a cost of $5,910,000. In addition to these various categories of work the year 1947 saw a sharp increase in activity connected with the separation of grades at highway-railway crossings.

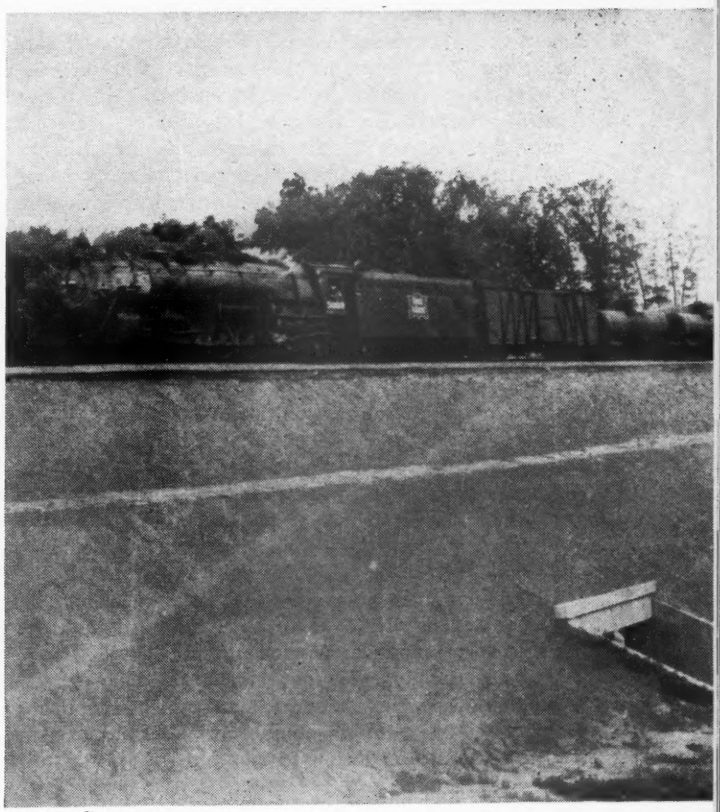
Construction Prospects

Every indication is that railroad improvement work will continue at a high level during 1948. Notwithstanding the large volume of work being done currently, this high rate of activity must be continued, and even expanded, if the railroad properties are to be brought up to the standards required by the need for improved service. Probably the requirements of the railroads as a whole are exemplified in a statement by R. B. White, president of the Baltimore & Ohio, to the effect that his road should spend more than $250,000,000 for major improvements and equipment during the next five to ten years. Given the necessary net earnings to implement their needs and plans, the railroads are certain to go forward with large programs of improvement and maintenance work during 1948.

One of the largest passenger station reconstruction projects in prospect is one that the Norfolk & Western planned to start about the first of the year, involving its station at Roanoke, Va. This is an architect s rendering of the track side of the station as it will appear after reconstruction

Last year the Chicago, Rock Island & Pacific completed a $15 million improvement project involving the relocation of 90 mi. of line. View below shows a new embankment on one of the relocated sections





Phantom view showing general arrangement of a new gas-turbine locomotive now being developed

TREND TO DIESEL POWER CONTINUES

Steam locomotives still move the great bulk of rail traffic—Much interest in turbine-type motive power

By **E. L. WOODWARD**
Western Mechanical Editor

The most striking development in railway motive power during 1947 was the further rapid extension in use of Diesel locomotives, a number of railroads announcing plans for the complete Dieselization of entire divisions or small individual roads. This fact, however, should not obscure the major consideration that the great bulk of rail transportation service in the country as a whole is still rendered with reciprocating steam locomotives, which also are being improved as regards design, maintenance and utilization. During the year, additional experience was secured with two experimental steam-turbine locomotives and the keen interest in turbine-type power is shown by the fact that gas-turbine locomotives, both powdered-coal and oil-fired, are now under development and it is hoped will be in service, possibly within the next 12 months.

Statistics of locomotive equipment on Class I railroads, compiled by the A. A. R. Car Service Division, clearly show the increasing use of Diesel power, as indicated in the tables. It will be noted from one of these that in the first 10 months of 1947 the number of Diesel locomotives owned and leased by Class I railroads increased from 3,565 to 4,089, or a total of 524. In the same period, the number of steam locomotives *decreased* from 37,072 to 35,258, or a total of 1,814. Diesel switchers increased 207 in number, as compared with a decrease of 365 in steam switchers. Electric locomotives remained practically the same in number, namely, 725 units including 111 switchers.

The other tables show a similar trend or confirm the figures quoted. For instance, 652 Diesels, as compared with 972 steam locomotives, were installed during the first 10 months of 1947, these figures including new locomotives built by railways or manufacturers, rebuilt locomotives, and those purchased or leased from other roads. Total locomotive retirements in the period mentioned included 46 Diesels, as compared with 2,928 steam locomotives. Of the latter, 592 were switchers. New locomotives placed in service included 606 Diesels, of which 244 were switchers and only 68 steam locomotives, the latter including a single steam switcher.

What may be expected in the immediate future is indicated by the table of new locomotives on order by Class I railroads from all shops, both railroad and locomotive builders. The number of Diesel locomotives on order increased practically each month during 1947 to a total of 918 locomotives on November 1, about one-half of these being switchers. By comparison, a total of 45 steam locomotives were on order November 1, including only 6 steam switchers.

Diesel locomotives still comprise only about one-tenth of the total locomotive ownership and an examination of operating statistics shows that, in spite of the high capacity, flexibility, availability and other operating advantages of Diesel power, it carries a little more than one-tenth of the total road-freight-hauling load. This proportion is increased to roughly 25 per cent in the case of passenger service and 30 per cent in switching service.

An examination of selected operating statistics, taken from I. C. C. reports, bears out the figures mentioned. Freight train-miles made by Diesel locomotive-propelled trains in the first 9 months of 1947 were about 44⅛ million, as compared with a total of almost 457 million made with all locomotives. The actual ratio is 9.7 per cent. On the basis of ton-miles of freight handled, excluding locomotives and tenders, Diesel

power developed practically 15 billion gross ton-miles, as compared with a total of 146.4 billion, or 10.2 per cent.

In road passenger service, Diesel power developed almost 63 million train-miles compared with a total of about 281 million, the actual ratio being 22.3 per cent. On the basis of passenger-train car-miles, Diesel power is credited with about 689 million out of a total of 2,695 million, or 25.5 per cent.

In yard switching service, the most ready basis of comparison, but not an entirely satisfactory one, is hours of service. Diesel locomotives were used practically 13 million hours in freight yard service during the first 9 months of 1947, compared with a total of 42 million, the actual ratio being 30.7 per cent. Diesel power is credited with 18.6 hours per locomotive day in this service, compared with 10.7 hours per day for steam power and an average of 12.3 hours per day for all locomotives.

Locomotive Maintenance

The year 1947 witnessed redoubled efforts on the part of railway officers to provide necessary shop equipment, servicing facilities, improved methods and trained personnel for the expeditious handling of motive power and to increase its reliability and availability. The success of this program as applied to Diesel locomotives is amply demonstrated by high records of availability and utilization which are now commonplace. In the steam locomotive field, also, marked improvement has been effected and gratifying records established up to 29,000 miles per month per locomotive with certain groups or classes of steam power.

Car Service Division reports show that on November 1, 1947, of the 4,089 Diesel locomotives owned, only one was stored serviceable and there were 91, or 2.2 per cent, in or awaiting shop for repairs. Similar figures for steam power indicated that of 35,258 locomotives, 968 were stored serviceable and 2,646, or 7.5 per cent, were in or awaiting shop for repairs. The above figures demonstrate both the effectiveness of the "current maintenance" program generally followed with Diesel locomotives and, no doubt, the special urge which railroads have to keep this type of power out of storage and shops and in revenue service.

Locomotives Owned and Leased—Class I Roads

	Switchers			Total Locomotives		
	Steam	Elec.	Diesel	Steam	Elec.	Diesel
January	6,355	111	2,634	37,072	733	3,565
February	6,311	111	2,663	36,894	733	3,642
March	6,277	111	2,689	36,625	733	3,707
April	6,243	111	2,707	36,478	733	3,761
May	6,167	111	2,717	36,150	733	3,803
June	6,124	111	2,745	35,967	730	3,837
July	6,094	111	2,769	35,832	725	3,903
August	6,060	111	2,799	35,614	725	3,960
September	6,012	111	2,820	35,391	725	4,012
October	5,990	111	2,841	35,258	725	4,089
Locomotives Installed						
January	17	..	38	92	..	78
February	19	..	47	98	..	79
March	20	..	27	102	..	59
April	22	..	24	144	..	60
May	18	..	13	114	..	47
June	15	..	25	67	1	67
July	14	..	26	102	1	66
August	26	..	31	85	..	56
September	11	..	24	68	..	58
October	30	..	26	100	..	82
Totals	192		281	972	2	652
Locomotives Retired						
January	55	..	.	254	..	10
February	63	..	3	273	..	3
March	54	..	2	372	..	2
April	59	..	6	291	..	9
May	94	..	5	441	..	8
June	59	..	..	229	4	1
July	40	..	2	239	6	2
August	60	..	1	303	..	1
September	59	..	3	293	..	5
October	52	..	5	233	..	5
Totals	595		27	2,928	10	46

New Locomotives on Order—All Shops—Class I Roads

	Switchers			Total Locomotives		
1947	Steam	Elec.	Diesel	Steam	Elec.	Diesel
January	1	..	162	53	6	580
February	..	..	185	45	6	629
March	..	..	162	52	6	582
April	..	..	181	36	6	620
May	..	..	268	30	6	712
June	..	..	302	24	5	765
July	..	..	307	29	4	782
August	6	..	325	40	4	807
September	6	..	321	46	4	791
October	6	..	458	45	4	918
New Locomotives Placed in Service						
January	..	..	27	7	..	67
February	..	..	43	10	..	74
March	..	..	23	7	..	55
April	..	..	15	16	..	50
May	1	..	12	17	..	43
June	..	..	24	6	1	65
July	..	..	26	..	1	63
August	..	..	28	..	..	53
September	..	..	22	4	..	56
October	..	..	24	1	..	80
Totals	1		244	68	2	606

The problem of locomotive fuel of all kinds confronted the railroads in 1947, as in every previous year, primarily relating to questions of supply, quality and price. The importance of finding the best answers to these questions is evident from the fact that the railway fuel bill annually exceeds $500 million and is now crowding 10 per cent of total operating expenses.

While coal is the most widely distributed and generally available fuel for locomotive use, curtailed production at mines and extensive shipments abroad made it difficult for railroads to secure adequate supplies at times during 1947 and current stock piles are dangerously low on some of the most important carriers, as they enter the new year. The former practice of expecting railroads to accept and burn whatever kinds of coal are not currently required by industry and for other purposes has operated to decrease the efficiency of railway service and add to costs. In some specific instances, locomotives with fireboxes and other details designed for burning high-grade coal proved unable to render satisfactory service with the poor coal supplied to them during 1947.

With the rapid extension in use of Diesel power, the problem of adequate supplies of Diesel fuel oil is becoming acute and engaging the attention of experts representing the railways, locomotive builders and the petroleum industry. Substantial price increases seem to be in prospect on account of their relation to gasoline prices which were raised three times in the latter part of 1947 to reach a 20-year high.

As regards the general motive power situation, the prospects are that in 1948 railroads will continue their program of retiring out-dated steam locomotives as fast as practicable, acquiring a limited number of new steam locomotives and modernizing others, and doubtless placing as many new Diesel locomotives in service as the builders can deliver.

Freight-car utilization improved in 1947. Turn-around time never reached 15 days and was less than 13 days during August, September, and October. 1946 averaged 17.78 days. Nine months' average net ton-miles per freight-car day was 981; a year ago, 872. Shipper co-operation played a big part

FREIGHT-CAR SUPPLY WORST IN 20 YEARS

By C. B. PECK
Mechanical Department Editor

From the very beginning of 1947 the railroads were faced with severe car shortages which Warren C. Kendall, chairman of the Car Service Division of the Association of American Railroads, said confronted the railroads with the worst situation in over 20 years. Continuous shortages of both box and open-top cars have strained the tempers of railway men and shippers alike, and have provided members of Congress with "causes" which they have championed with avidity.

On January 1 there were 1,740,022 freight cars of Class I railway ownership—19,626 less than one year earlier. At the end of December, 1946, Col. J. Monroe Johnson, director of the Office of Defense Transportation, said that unless more steel could be diverted to building freight cars, "production in the United States will be retarded by want of transportation."

The Struggle for Steel

Then began the effort to get new cars built. On January 10 the Steel Products Advisory Committee of the Civilian Production Administration branch of the Office of Temporary Controls met with representatives of the steel companies to consider supplying materials for a production program of 7,000 new cars per month. C. P. A. announced that its priority powers would expire on March 31 and the accelerated program would be "built around" voluntary cooperation between builders and suppliers. Then, early in February, Colonel Johnson announced that he had been assured that the steel industry would provide enough steel for the construction of 10,000 cars monthly.

Meetings of representatives of the railways, car builders, and steel producers, some called by Colonel Johnson and others by Senator Clyde M. Reed, were held in Washington to inquire why the monthly production of freight cars had fallen short of the 7,000 quota through June and 10,000 thereafter. Both men were critical of the car builders. Colonel Johnson asserted that the steel producers had more than filled their promises of steel deliveries. After a meeting on August 1 Senator Reed confidently predicted that the car situation would begin to improve now that the domestic roads had 110,000 cars on order and were expected to order 30,000 soon. But later in the month he expressed his dissatisfaction with the manner in which the car builders had "fallen down" in throwing steel in their hands into freight-car production.

S. M. Felton, president, American Railway Car Institute, emphasized that it is not the total tonnage of steel that is all important, but having complete car sets of all materials and components available at the proper time. No such amount of steel as that cited by Senator Reed, he said, had been received by the car builders, and he suggested that the difference had probably gone to the railroads for car repairs.

Under the program set up in February, he said, steel for freight cars was to have been increased to a 10,000-car-a-month level in July, an increase of 40 per cent. Actually, he reported, the July receipts of the builders were 20 per cent less than in June and about 10 per cent less than in April and May. The 10,000-car program would require inventories to be built up sharply and in balanced car sets, or stoppages would wreck the program. Furthermore, the builders, he said, use 14,000 tons a month making parts.

A table records freight-car orders and production by months up to December. It is a record with which neither the railroads, nor shippers, nor car builders, nor Colonel Johnson, nor Senator Reed is satisfied.

With the acute shortages of both box and open-top cars which prevailed throughout much of the year, no region could be completely satisfied without doing serious injustice to other regions. The widespread dissatisfaction is ample evidence of the fairness with which car distribution was administered by the Car

Service Division under Mr. Kendall's direction.

Early in the year the western grain shippers, testifying before Senator Reed's subcommittee, blamed the Interstate Commerce Commission, the Association of American Railroads, and the Office of Defense Transportation for lack of sufficient cars to move the record grain harvest. Charles Donley, representing steel, pottery, and other industries at Pittsburgh, said his industries were about 30 per cent short of box cars. An investigation by Senator Chapman Revercomb brought to light dissatisfaction in northern West Virginia.

In March, a meeting of the New England shippers, called by the New England Shippers' Advisory Board, questioned whether the public interest would not be better served if such I. C. C. service orders as then required New England roads to send 455 empty cars out of New England daily, were modified so that loads from New England would be moved when destined to points in the west. A cheery note came from the Midwest Shippers' Advisory Board, meeting in April: shortages there, it said, were greatly alleviated.

In July the Northwest Shippers' Advisory Board passed a resolution urging the I. C. C. and the A. A. R. to maintain the equivalent of 100 per cent of ownership on the northwestern roads to handle the impending live-stock and grain movements until the close of navigation on the Great Lakes and thereafter that the Northwest maintain 90 per cent of ownership on its lines.

New England was again heard from when, in December, Representative Edith Nourse Rogers introduced a resolution in the House requesting information on the coal-car shortage for New England.

Congressional Inquiries

Such a situation was bound to get an airing in Congress. Hearings conducted by a subcommittee of the Senate committee on interstate and foreign commerce under the chairmanship of Senator Reed for the investigation of the box-car and coal-car shortages began late in January. At the outset the senator charged that the railroads and the commission were discriminating against the west. As his investigation proceeded, his actions suggested a belief that, as R. V. Fletcher, then president of the A. A. R., testified, the answer to present shortages is "not more laws but more cars." The senator's influence was in the direction of higher freight-car output.

Another hearing less judicial in its approach began when Representative Cecil R. King called the congressmen from the nineteen states west of the Mississippi in emergency caucus to hear a report from a reporter for the Los Angeles Daily News which, he said, revealed "one of the most alarming situations ever encountered respecting railway manipulations [of the freight car supply] to the detriment of the entire west." This body also heard Robert R. Young, chairman of the board, Chespeake & Ohio, charge that the appointment of railroad presidents and the movement of cars are "generally controlled out of New York," and Wendell Berge, formerly in charge of the Anti-Trust Division of the Department of Justice, say that "no really effective solution" to the freight-car shortage can be developed without "circumscribing the power of the A. A. R." Both statements were promptly challenged by W. T. Faricy, president of the A. A. R., for lack of factual soundness.

The Lemke Bill, introduced in the House in the spring, to provide for a "fair and impartial regulation of car service" by a somewhat autonomous Bureau of Service within the I. C. C., was characterized by Mr. Faricy as "a direct and major step in the direction of outright governmental operation of the railroads."

A measure for alleviating the car shortage—without more cars—which was accorded widespread attention during the year was the proposed adoption of punitive per diem rates. Little support was given to this proposal from railroad sources, although six railways in the Central Western and Southwestern districts were in favor of higher per diem rates than most of the others. The A. A. R. on June 1 raised the per diem from $1.15 to $1.25 and on September 1 to $1.50.

After extensive hearings, the I. C. C. ordered the establishment of a $2 rate on October 1, other than on tank cars and refrigerator cars, to continue for six months. On November 15 a temporary injunction setting aside this order was granted on petition of 170 railroads, of which 130 were short lines. The petitioners contend that a per diem rate is limited to adequate compensation, and that the arbitrary order of the commission will "deprive petitioners of their property without due process of law."

The Outlook

In the meantime, the railroads kept on "sawing wood." Carloadings in the first quarter were 10,518,000; in the second quarter, 11,153,000, and in the third quarter, 11,436,000. These performances exceeded the same quarters of 1946 by over 8 per cent, by 20 per cent, and by a fraction of 1 per cent, respectively.

Several events during 1947 have effected some improvement in the outlook for new freight cars during 1948. One is the recent announcement of the Office of International Trade, Department of Commerce, that exports controls will be applied to 95 per cent of the exports of steel-mill products to all destinations except Canada. Another is the stepping up and the improved coordination of steel deliveries for car construction reflected in the increased output of recent months. Should the control of steel allocations recommended by the Harriman committee be made effective, car construction for domestic service might approach the capacity of the car-building industry.

Replacing cars destroyed and dismantled, which averaged over 3,400 a month during 1947, a program of 10,000 new cars a month would add about 79,000, and a program of 14,000 cars a month, over 120,000 cars to the inventory of cars at the end of the year.

The Backlog of Orders Increased during 1947

	Ordered during month	Produced during month	Backlog on first of month
January	9,905	2,982	47,977
February	13,729	2,293	75,578
March	12,049	2,883	86,031
April	8,861	4,123	94,947
May	7,390	3,929	99,346
June	13,084	5,527	101,430
July	14,865	5,879	109,006
August	2,376	5,963	117,592
September	9,917	7,597	113,780
October	14,537	8,364	115,996
November	8,169	8,938	122,463
December	...	...	125,395

Passenger-miles ran double those of 1939

GOOD RIDING SERVED UP IN '47— MUCH MORE IN OVEN

New streamliners, service wrinkles add for riding pleasure; sale of Pullman a significant event; vacation market bigger

By **WILLIAM H. SCHMIDT, JR.**
Assistant Western Editor

Passenger service costs have reached dizzy levels

The train-riding public got a lot of fine new equipment during 1947, a number of new service wrinkles, some faster runs, and an improvement in schedule performance. Among other things, they were presented with 80 brand-new or modernized streamliners, bringing the total in operation to about 108 named streamlined trains, comprising 223 complete sets of equipment. But, due to the inability of the carriers to get delivery of more than a fraction of the cars which they have ordered, even more of the public's 1947 gain consists of promises embodied in some 2,503 passenger-train cars and about 175 passenger locomotives which are currently on order. A significant feature of the orders is that many will mean wholesale restocking of individual roads' car fleets. It is a long time since the country has witnessed this kind of car buying.

Volume Still High

While the volume of rail travel is falling gradually from the war-swollen years, nevertheless, passenger-miles are running about twice those of 1939, a fairly normal and busy year preceding the war. Revenue passengers carried in the first eight months of last year were down 12 per cent from the same period of 1946, and revenue passenger-miles were down 32.6 per cent. Per-car occupancy was 21.5 revenue passengers (17 per cent below 1946, but higher than any other peacetime year). This fact, coupled with an average train length of 9.6 cars (down 6 per cent compared with the same period of 1946, but higher than any other peacetime year) placed the carriage of passengers on a high level of efficiency. Such performance helped to cope with operating cost increases.

Nevertheless, it must be pointed out that, unlike freight service, the most desirable kind of passenger service is not necessarily the most efficient. As one railroad counsel expressed it in a recent rate hearing, "The more passengers standing in the aisles during the war, the more efficient we were being." There is clear evidence, however, that the roads did not attain their excellent operating indices in 1947 by unintelligent crowding and abandonment of "patronizable" trains. Most of the new coaches, for example, seat fewer persons than the older conventional type. There was little loss—if any—of good through trains during the year, and a number of roads actually increased their frequency. The increase in load-factor may be explained rather by the abandonment of local and branch line trains which the public itself had long ago deserted and by the rapid introduction of more modern and powerful motive power.

Sale of Pullman

Perhaps the most significant single event in the passenger field during the year was the purchase of the Pullman Company by 57 railroads, effective June 30, at a price of $75 million. In taking over the 80-year-old sleeping car business, with its 30,000 employees, the buying group saw to it that orderly service was maintained without interruption. The company is now being operated under an arrangement which, according to its president, is "good enough for the interim period but would not be satisfactory for the future." Within a period ending not later than

December 31, 1948, the Pullman Company will be reduced into, or sell its properties to, a sleeping car service corporation which will terminate existing operating contracts and offer new ones to perform "hotel servicing" of sleeping cars, or to supply excess sleeping cars, or to maintain sleeping car equipment and to operate shops owned by individual railroads.

New Service Wrinkles

Of almost national application during the year was the inauguration of credit arrangements for the purchase of railroad transportation. Following the introduction of credit on several individual roads, some 47 railroads joined in forming a Rail Travel Credit Agency, effective April 1, which administers a credit card plan under which firms and individuals buy transportation on identification cards for which they are billed monthly. Certain roads have extended the credit plan to permit passengers to pay for transportation after boarding trains. In addition to this "convenience" type of credit arrangement, a nationwide "Rail Traveloan" plan, applicable on 59 roads, was inaugurated in September in some 642 cities. Essentially an installment plan, Rail Traveloan is a bank credit arrangement. Auto-rental service for railroad passengers was reinstated on a nationwide basis effective July 1 and is now in effect in more than 200 cities.

Individual roads introduced a number of new service features in addition to those which were given nationwide application. At least two roads inaugurated a hotel-reservation plan by which travelers reserve rooms by telephoning local passenger agents. One railroad inaugurated the showing of motion pictures aboard one of its through trains. Courier-nurse, stewardess and hostess services were introduced or reinstated by a sizable number of roads during the year.

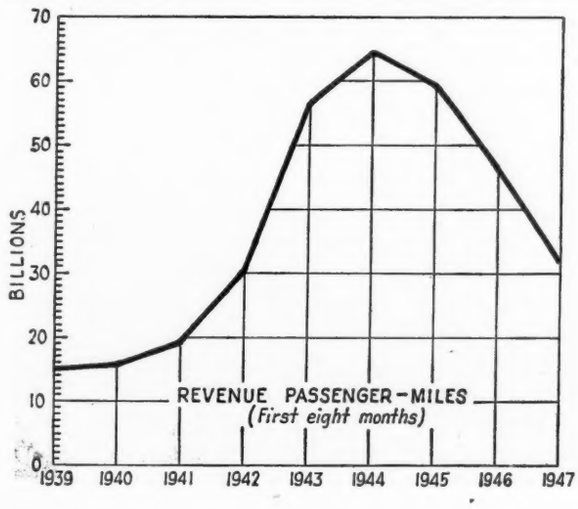
The rapid introduction of paid vacations for hourly-rated employees in industry has effected an historic change in the texture and size of the travel market. It is estimated by the secretary of commerce that some 30 million wage earners now enjoy paid vacations, including at least 85 per cent of all organized workers. These people are a brand-new and incomparably broader market for the common carriers to attract. So great is their impact on the facilities of carriers and resorts that the National Association of Travel Officials has initiated a national campaign to spread the vacation period more uniformly through the year, in which effort the railroads are playing an active role. The possibility of full and heavy trains all year round, with high utilization of equipment, inheres in these two phenomena of volume and spread. To attract a portion of this greater travel market, certain railroads, acting through the Rail Travel Promotion Agency, started paying commissions of 10 per cent on all-expense business to authorized travel agencies in June, 1946. By the middle of 1947 virtually all major passenger-carrying roads were in the plan.

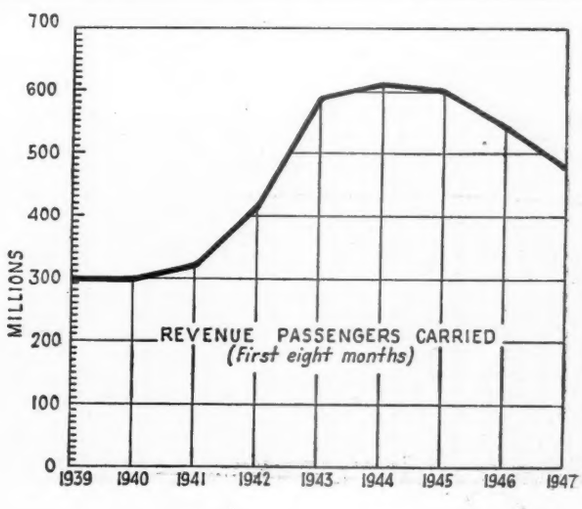
Despite rising costs out of all proportion to most other items of expense, the railroads continued to improve their dining car service during the past year. Several roads introduced the European system of dining by assigned sittings, to overcome crowding and tedious waiting for seats. Other roads extended the serving of meals direct to coach seats. Grill cars increased in number, with the aim of increasing capacity and cutting costs. Free coffee was made a service feature of several southwestern lines.

Intelligent courtesy is not easily won these days. One railroader expresses, somewhat wearily, the thought that management has to work like the devil with employees "just to stand still" in the matter of courteous performance. Nevertheless a growing number of roads, plus the Pullman Company, are pursuing training programs of the lecture or discussion type, both with professional and in-service leadership, and declare that positive accomplishments derive therefrom.

Average revenue per passenger mile during the first eight months of 1947 increased only 5.6 per cent compared with average revenue for the whole of 1946, and 17 per cent over that in prewar 1940. Thus, as inflation proceeds, railroad travel becomes increasingly a cheap commodity, in comparison with most other necessities and pleasures of life.

Such a characterization cannot be applied to the railroads' cost of providing it, however. Higher volume and the pruning of parasitical, unremunerative services appear to be the only means of bringing passenger service into the profit brackets.





YEAR OF "RECORD-BUSTING FREIGHT PERFORMANCE

Paradox of high volume and smaller car supply met by efficiency; net load per train-hour highest on record

By **WILLIAM H. SCHMIDT, JR.**
Assistant Western Editor

The year just passed was a year of paradox. In their most accurate index of net work performed—revenue ton-miles—the railroads, during the first eight months of 1947, showed greater activity than in the corresponding period of any peacetime year in history. Furthermore, the load carried exceeded that of the previous year by more than 13 per cent—an increase diametrically opposite to the forecasts of many observers.

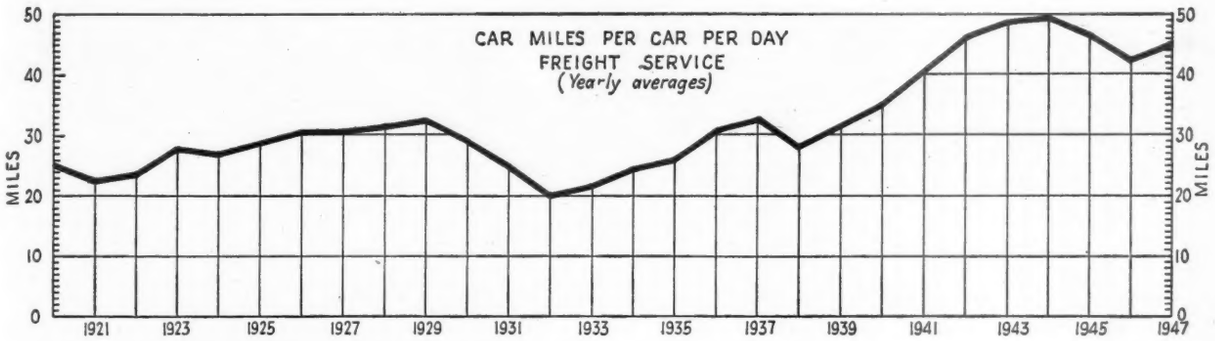
Even more striking is the fact that more carloads of freight were handled during the first 11 months of the year than in the corresponding portions of any year since 1930—including even the swollen years of World War II. Compared with 1946, carloadings in 1947 were up almost 8 per cent. The highest carloadings total in any week in 17 years was handled by the carriers the week ended October 11, when loadings of revenue freight totaled 956,862 cars.

The 1947 record was accomplished with an ownership of 544,000 fewer freight cars than were on hand in 1930. It is in this paradox of heavy load and short equipment that the major freight service problem of the railroads lay during the year just past. Freight cars on line daily averaged 1,923,557 during August, 1947, a decrease of 1.3 per cent under August, 1946, and below the average for any year since 1941.

A net increase in car ownership (i.e., new cars exceeded retirements) was enjoyed by the railroads in September, however, for the first time in 25 months, and the heads of both the Office of Defense Transportation and the Association of American Railroads look toward a net gain in ownership each month from here on. The latter organization also calls attention to the fact that the new cars carry more freight, with less time out for repairs, than the units they replace. Colonel Johnson of the O.D.T. foresees a production of 14,000 to 15,000 cars a month by next summer, which he hopes will "lick the car shortage."

A combination of managerial zeal, shipper cooperation and heavy traffic produced an exceedingly high level of operating efficiency during the year. The number of cars per freight train (an index of relative operating efficiency and motive power) averaged 52.6 during the first eight months of the year, an increase of 1.7 per cent over the average for the corresponding period of 1946, and the highest ratio for any year in history, except 1945, when the ratio was 52.2, and 1944, when it was 53.0. Car-miles per car-day (another indication of carrier efficiency) averaged 45.1 during the first eight months of the year, an increase of 8.1 per cent compared with the corresponding months of 1946. This year's performance was the

Less-carload freight ran high in volume — and in carriers' cost, too

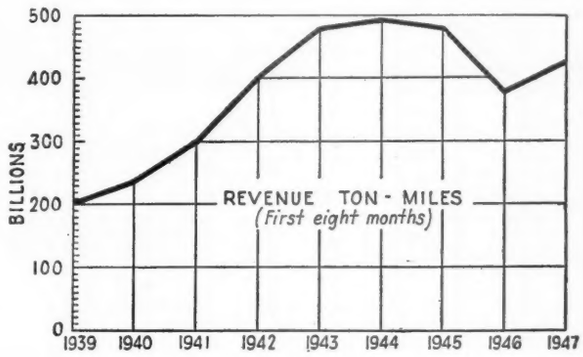


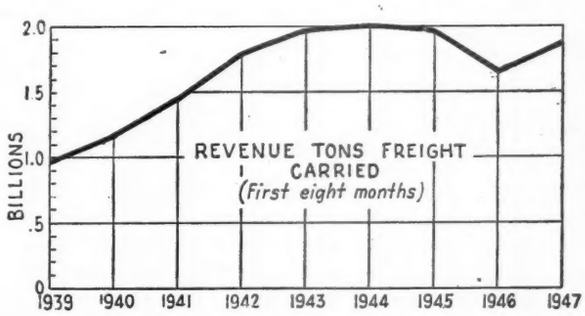
highest ever recorded in any peacetime year in history.

Net tons per loaded car (which reflect shipper cooperation, minimum load regulations and high capacity equipment) were 32.6 in the first eight months of the year—5.2 per cent higher than the figure for the same period of 1946. The average carload for the year just past is the highest of any peacetime year in history and exceeds even the wartime year of 1942.

As a result of this combination of factors, the significant figure of "net ton-miles per train hour" for the first eight months of 1947 was higher than the average of *any* year in railroad history.

Without the high basic efficiency thus attained the railroads could never have handled their freight volume as well as they did. As O.D.T. Director Johnson expressed it, in a recent press interview, "But for the increasing efficiency of the railroads we would have been lost." It is upon longer trains, bigger carloads, faster movement, quicker turn-around and fewer bad order cars that the high level of production in this country and the reconstruction of countries abroad have depended these past 12 months. The railroads were estimated by Colonel Johnson to have fulfilled at least 85 per cent of the demand for cars for loading.





Outstanding Records of 1947

The railroads set four outstanding records during last year, as the A. A. R. has pointed out:

(1) The carriers moved more carloads of freight the first ten months of the year than in any of the war years, and with far fewer freight cars.

(2) An all-time high in box-car loadings was reached in the third week in October.

(3) Some 68 per cent more ton-miles of transportation service were performed in October, 1947, than in the same month of 1930, although the latter was the last time during which the railroads moved more carloads than they did in October, 1947.

(4) A new low in turn-around time of freight cars —12½ days—was set in October.

An important element in the sad financial showing in 1947 was the extraordinarily high incidence of freight loss and damage claims. Claims actually honored by 127 Class I railroads during the first half of 1947 amounted to more than $56 million, an increase of almost 34 per cent over the corresponding period of 1946. The all-important ratio of loss and damage payments to freight revenue increased from 1.60 during the first half of 1946 to 1.66 the first half of 1947. The ratios for each of these periods exceeded the ratios of any year since 1921. These figures take no account of additional claims for the same period still under investigation.

About 34 per cent of the total loss and damage in the first half of this year involved less-carload freight, although revenues therefrom constituted less than 7.5 per cent of total freight revenues and 1.7 per cent of total tonnage during the first quarter of the year. The proportion of loss and damage involving l.c.l. has increased during the past few years.

This is but a portion of the problem which the railroads face in handling heavy offerings of less-carload traffic. It is probably in this category of traffic that prime costs are increasing most; that labor shortages and incompetency are most serious; where congestion is greatest; and where shippers' complaints of poor service are most numerous.

The year saw unusual activity in the export of bulk commodities. Coal exported to Canada during the first 10 months of the year was up more than 12 per cent over the same period of 1946. Other coal exports were double in volume.

Gallery of Chesapeake & Ohio shop at Huntington, W. Va., in which fluorescent lighting and functional color of walls, ceiling and floor have greatly improved working conditions

ELECTRICITY IS CAUSING MAJOR CHANGES

Applications of electrical equipment are increasing and with them has come the need for making several important decisions

By **ALFRED G. OEHLER**
Electrical Editor

Nearly all major railroad functions are in large measure performed electrically. New motive power is mostly Diesel-electric and its equipment is largely electrical or electrically controlled. The modern passenger car is superior to older types largely because of electrical equipment. There have been a number of innovations in railroad equipment and shop facilities. The trend will apparently continue and cause railroaders to make a number of changes in their present methods of operation and maintenance.

The electric locomotive stands as the ideal motive power unit in so far as performance is concerned. It compresses large values of horsepower into minimum space and this horsepower is available at nearly all speeds. It is also capable of operating under high overloads for short periods of time. The most recent additions to the railroad field are two 5,000-hp. single-cab locomotives recently delivered to the Great Northern, and four 6,800-hp. locomotives, now nearing completion, for the Virginian.

These locomotives are for use on existing electrified sections of railroads. No new electrification has been initiated on American railroads for ten years and the Boston & Maine electrification has been abandoned. These circumstances need some explanation. No such major expenditures can be made by a railroad during a war, and the subsequent maladjustments also militate against them. The B. & M. installation was a short one through a tunnel which required using electric locomotives as well as steam, and was rendered unnecessary by improved tunnel ventilation which permitted the operation of Diesel locomotives.

One large railroad recently made an extensive electrification study, but its plans to electrify have apparently been abandoned since it has subsequently purchased Diesel-electric locomotives in quantity. The greatest obstacle to new electrifications is that it is difficult to show savings sufficient to warrant the investment, and it is a bold and far-seeing management which can project its ideas far enough into the future to see how the better motive power can serve to develop enough additional traffic to justify an investment which may require 30 years for amortization. Costs of labor and material are now at an all-time high and an added difficulty is presented by taxes. An electrification may add as much as $25,000 of fixed property per mile of line and, when this is done, each community along the electrified section will increase its taxes accordingly.

In spite of these circumstances, several engineers have recently developed studies to show that electrification can be justified on some lines carrying only moderate traffic. Electrification has usually been considered only for heavy traffic lines, but these studies apply it to locations where power is abundant and show considerable savings in power cost.

Three years ago, Diesel-electric road locomotives

were selling for about $85 per horsepower, and steam locomotives could be purchased for less than $40 per horsepower. This made it appear that the Diesels could be used only in preferred service where they operate almost continuously. In the past two years, little but Diesel power has been purchased, and since steam locomotives are not being manufactured in quantity, their cost per horsepower has been increased to a point which indicates a much extended use of Diesels. Some roads which are partly Dieselized show appreciable savings from their use, and estimate that savings will be proportionately larger if the changeover is complete and they can dispense with steam locomotive facilities.

In so far as performance is concerned a Diesel locomotive is an electric locomotive, the power output of which is limited by its engine or engines. This limitation has been reduced by the introduction of 1,500- and 2,000-hp. engines, and refinements of control have been added which effectively improve performance. One highly important feature, particularly for roads having heavy grades, is the use of dynamic braking.

Another factor tending to further extend the use of the Diesel is the shop facilities being developed by the larger users. In electrical maintenance, traction motors are the major item. In some cases, the cost of periodic motor overhaul has been reduced to one-third of what it was initially. In one instance, 90 per cent of the motor failures were bearing failures, and within the past year bearing failures have been practically eliminated.

Lighting

The railroads seem only recently to have become aware of the importance of good lighting. Three installations made during the past year afford outstanding examples. One of these is in the Pennsylvania's steam enginehouse at East Altoona, Pa. The electrical load is 6.27 kw. per stall, and the light level on the side of the boiler is 25 footcandles.

Another is the application of mercury, incandescent and fluorescent light in combination with the use of functional or dynamic color for machines, sidewalls and ceilings in the Huntington, W. Va., shops of the Chesapeake & Ohio. This installation has measurably increased production, and decreased absenteeism. Intensity values as high as 40 footcandles are obtained in the machine shop and coach repair shop.

A third lighting application, on the Erie, consists of rolling lighting units and tool trays for both enginehouses and shops. With these units for use at work locations, the only additional lighting requirement in enginehouses is aisle lighting. At a distance of 9 to 10 feet, they provide from 35 to 40 footcandles of almost shadowless light on the side of a locomotive. Each unit is equipped with four 100-watt fluorescent lamps.

One railroad makes a practice of dusting shop floors with lime. This gives a reflecting surface which markedly improves the quality of light from overhead sources. A number of old shops have been brought out of the dungeon class to become good working areas by painting or whitewashing walls and columns, and painting machinery.

It is now common practice to equip railroad passenger cars with 8-ton refrigerating units for air conditioning. The combined connected motor and lighting load may be between 16 and 19 kw., and the car generator may have a capacity of 20 to 25 kw. Past practice has designated that the generator should have a capacity twice the total connected load, so it may be seen that margins are relatively small. The traditional rating for storage batteries is at the 8-hr. rate, but few modern air-conditioned cars could operate for more than two hours from the battery. Yard charging and terminal precooling facilities are inadequate. In some cases, they are ineffectual because nearly all the available standing train time is required for applying and removing standby power plugs.

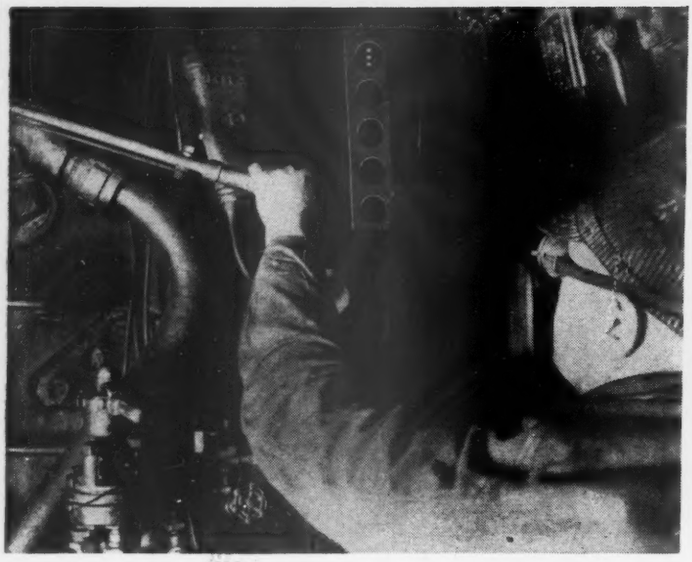
One manufacturer in telling what his standby motor will do in a terminal states, "The motor capacity is sufficient to supply d.c. power during the precooling period without excessive drain from the battery." This means the battery must be charged on the road from a generator which has only a narrow margin of capacity. This situation has caused the development of larger axle generators and of 25-kw. generators driven by internal combustion engines which can run continuously.

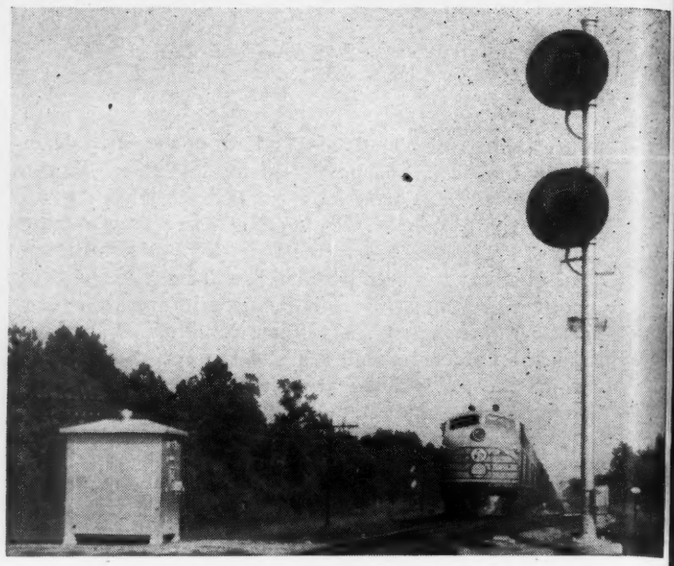
Communication Power

There is little doubt that railroads will soon be making extensive use of train communication, with yards and freight trains to come first. Manufacturers of communication equipment are developing apparatus specifically designed for railroad service. The question of power supply also has been given manufacturers' attention, but its application rests for the most part on the railroads. They must decide, for example, whether to use batteries or batteries and axle generators or internal combustion engines as power sources. They must determine what is needed in the form of standby power for yard battery charging. If engines are used, they must arrange for operation appropriate to the conditions involved with assigned or pooled cabooses. Arrangements must be made to avoid possible freezing of batteries, and the railroad operators must also determine what voltage regulation is tolerable to the communication equipment used.

A number of other developments made during the past year serve to indicate electrical trends. One railroad, for example, installed strain gage testing to determine the amount and character of stresses which are caused in bridges and track structures by the passing of trains. It will also be used for testing parts of locomotives and cars. A roll-out battery box for passenger cars offers means for improved battery maintenance. Three railroads have placed electrical power cars in service which can supply power for emergency purposes; they are in service almost continuously.

Studies of electrical corrosion indicate how much decomposition of underground structures can be greatly reduced. Other corrosion studies show what materials are best suited to resist corrosion in overhead construction. Standards have been set up for passenger car communication circuits, which have prevented the almost certain confusion which would have occurred without this prompt action. Supersonic methods of detecting flaws in locomotive axles have in one instance eliminated such failures. Sealed beam headlights offer the potentiality of better light with little likelihood of road failure.





SIGNALING IS DUE FOR A BIG INCREASE

Construction was restricted in 1947, but large programs are in the making, especially to comply with Interstate Commerce Commission orders

By **JOHN H. DUNN**
Signaling and Communications Editor

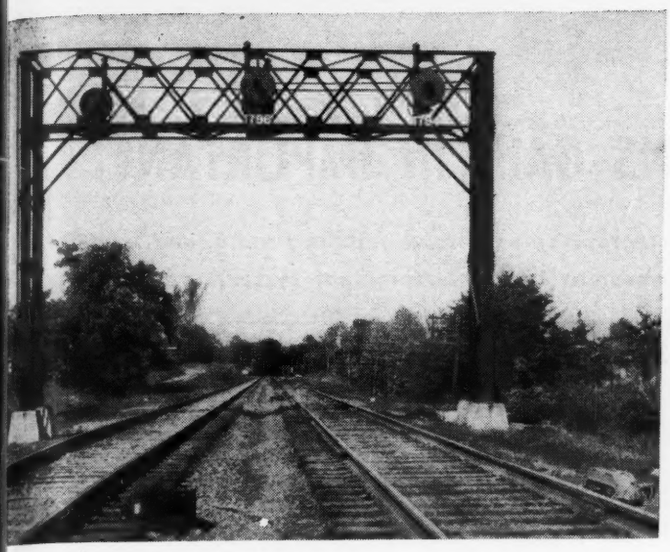
Because of some shortages of materials and trained men, and also due to various restricting influences, not as much signaling was installed in 1947 as had seemed to be in prospect when the year opened. As explained in more detail in an article in the statistical section of this issue, the total number of signaling units placed in service during 1947 was 10,674, compared with 11,384 for 1946 and 10,394 for 1945.

Restrictions in the supply of certain materials are now being relieved, more men are being trained in circuit drafting and signal construction, and uncertainties with respect to requirements have been clarified, in part. Accordingly, early attention can be given to projects of interlocking and centralized traffic control as well as to replacements of antiquated facilities. To this must be added the block signaling, automatic train stop, train control or cab signaling which must be installed to comply with the order of the Interstate Commerce Commission issued June 17, 1947. As a whole, these signaling projects will necessitate a long-range program of five years or more, involving an average annual amount of construction greater than that in any previous year on record—in other words, approximately double the volume installed in 1947, or about twice the annual average for the last 10 years.

The reduction in the amount of new signaling placed in service in 1947, as compared with any of the three previous years, was due to several circumstances. An important fact is that the signaling placed in service in any one year is the result of the thinking, planning and conditions, not of that year, but of the previous year or perhaps two previous years. During the war, signaling construction was confined to those projects which would accomplish the greatest increase in track capacity as an aid in expediting wartime traffic. As a result, preference was given to the installation of centralized traffic control on busy single-track lines. This momentum was carried over into 1946 to complete several extensive C.T.C. projects planned during the war. The replacement of old interlockings deferred during the war also needed attention.

Thus, in January, 1947, the prospects were for a large signaling construction program, planned and carried to completion according to the needs of the railroads with respect to safety and efficiency of train operation. As the year developed, however, the volume of construction was limited by the inability to develop plans, secure materials and employ enough trained signal construction men. Also, an element of uncertainty with respect to expenditures for new signaling resulted from actions by the Interstate Commerce Commission. For example, starting in May, 1946, negotiations led to the issuance of the June 17, 1947, order, in which the commission requires the railroads to install a block signal system on lines, not now so equipped, on which freight trains are operated 50 m.p.h. or more and passenger trains at 60 m.p.h. or more, and protection, such as automatic train stop, train control or cab signaling, in territories where trains are operated at 80 m.p.h. or more.

According to information filed with the commission in 1946, passenger trains were operated at 60 m.p.h. or more on about 17,473 mi. on which the block system was not in service. The commission's requirement for



Cab signaling, similar to that illustrated at the far left, may be installed during the next four years on a considerable portion of some 23,000 mi. or more where the I. C. C. has ordered automatic train stop, train control or cab signaling

Block signaling, which may include centralized traffic control, as illustrated here, may be installed in the next few years on a large percentage of approximately 22,000 mi. where track-circuit controlled systems are needed in territory not now so equipped

Intermittent inductive train stop, as illustrated by the inductors along the rails in this picture, may be installed on a considerable proportion of about 23,000 mi. where the I. C. C. has ordered train stop, train control or cab signaling. This picture also illustrates two-track centralized traffic control territory where both tracks are signaled for train movements in both directions

block signaling can evidently be met by the installation of either manual block or automatic block. If manual block is to be used, it must comply with the rules which were issued by the commission as a part of the order. These rules require careful reading, but, in the opinion of some experienced operating officers, trains would not be permitted to use sidings at stations where no operators are on duty. The low speed required for permissive train movements is also another limiting factor. Accordingly, it is quite likely that most roads will not change over from timetable and train-order operation to manual block as a means of complying with the order, except for short sections or light-traffic lines.

In the data filed with the commission, 14 roads listed a total of 4,902 mi. where manual block was in service and on which freight trains are operated at 50 m.p.h. or more, or passenger trains at 60 m.p.h. or more. This 4,902 mi., added to the 17,473 mi. mentioned above, totals 22,376 mi., on the greater portion of which track-circuit-controlled block signaling most likely must be installed within the next five years. Nearly all of this is single track, and on most of it the traffic is not heavy, because to a great extent the single-track lines which handle heavy traffic have been equipped previously.

The systems of modern signaling which are available, and which have been installed in recent years on several railroads, were discussed in detail in an editorial entitled "The Responsibility of Management in the Choice of New Signaling" in the July 26, 1947, issue of the *Railway Age*.

Train-Stop and Cab Signaling

An analysis of the data which the railroads filed with the commission reveals that 21 roads had a total of 23,500 mi. of track on which trains were operated at 80 m.p.h. or more, and on which no automatic train-stop, train control or cab signaling was in service. Within a short time after the order was issued in June, 1947, some railroads reduced train speeds below 80 m.p.h. and thus complied with the order without installing protection in addition to existing automatic block.

Twenty-two railroads petitioned the commission for relief from all or certain portions of the order. Eleven roads presented their cases at hearings before Commissioner Patterson in Chicago during September, October and November. No decisions have been issued to date, and further hearings may extend well into 1948. In the meantime, some roads are marking time, while others are going ahead on extensive signaling projects which may or may not be in the categories involved in the I.C.C. order.

For example, when presenting its case, the Union Pacific stated that orders had been placed for equipment to install automatic continuous cab signaling throughout on 990 mi. of double track between Omaha, Neb., and Ogden, Utah. The Burlington proposed to install cab signaling on the major portions of its route between Chicago and St. Paul and between Chicago and Omaha. Also, the Soo Line, as operating agent for the Wisconsin Central, announced that preliminary arrangements, subject to approval of the federal courts, had been made to install a block signal system on 268 mi. The Milwaukee is proceeding with the installation of cab signaling on certain portions of the route not now so equipped between Chicago and St. Paul. These and other similar projects, which may or may not have been brought to the fore by the commission's order, are definitely on the books for 1948.

On the other hand, some roads, when presenting their cases, have made proposals which require decisions by the commission before orders can be placed for material or field construction can be started. For example, the Santa Fe proposed to install automatic train stop on only those sections of its line where any trains operate at 80 m.p.h. or more, and to install train-stop apparatus on only those locomotives which are to operate at 80 m.p.h. or more. On some roads, plans for the construction of interlockings and centralized traffic control may have been pigeon-holed in order that those funds available for new signaling could be used for automatic train stop, train control or cab signaling as may be required by the I. C. C. order.

Thus, numerous conflicting influences are affecting the signal construction programs, but out of it all there comes the outstanding fact that a lot of new signaling must be installed, and that this volume, for the next four or five years, should average larger than the previous high records.

COMMUNICATIONS GAIN IN IMPORTANCE

Much hinges on modern telephone and telegraph service, road and yard radio, and loudspeaker installations, as well as communications and entertainment systems on trains

By **MAURICE PEACOCK**
Associate Editor, Signaling and Communications

The share of the nation's total transport to be handled by the railroads depends largely upon their ability to meet the competition of other carriers. Essential in this respect are quick, reliable and modern communication facilities—communications benefiting not only the railroads, but their shippers and passengers as well. Railway officers responsible for communications realize this, and through their effort and cooperation with the engineers of the equipment manufacturers, came outstanding developments and applications thereof during 1947. The actual trends in the various phases of communications construction on the railroads of the United States and Canada are explained tabularly elsewhere in this issue.

During the past year many railroads increased the capacity of their communication systems by the adaption of more line-wire carrier equipment, thus providing additional circuits for telephone, telegraph and printing-telegraph message service between offices in distant cities. Such improvements have benefited not only the railroads and netted them further economies, but have aided the shippers and passengers to a great extent. Printing telegraph permits more rapid transmission of train consists and other records between distant points, thus expediting freight shipments. Passengers are aided by being able to obtain prompter service from the railroads with regard to train information, purchase of tickets and in making reservations.

Last year saw further development of short-haul and long-haul carrier communication systems. The short-haul system is designed to operate on existing telephone lines from 100 to 150 mi. in length. The purpose of the system is to meet the needs of additional communication facilities where it would not be economical to purchase more costly long-haul systems. One road has installed a three-channel carrier system on a two-wire underground cable on 247 mi. This installation saved the expense of constructing a pole line, and also eliminated a lot of possibilities of potential line troubles during bad weather and severe storms.

Other roads have connected off-line offices with their general offices by means of direct printing-telegraph service. One road is using a combination of punch card business machines and printing-telegraph machines in handling of interchange reports, train consist reports and car records between two large freight yards 118 mi. apart. Thousands of dollars are being saved annually by the simplification of car accounting procedures originally followed.

Further developments of beam radio, which permit several conversations or messages to be handled by radio simultaneously between distant points, were made in the United States and Canada during 1947. Many communications officers still contend, however, that the system is not practical for railroad use, especially with respect to communications required between intermediate points. One road in the United States, however, did carry out extensive tests on a radio beam link between its general office building and a station 44 mi. distant. Carrier telephone equipment was tested on this beam to provide additional telephone and printing-telegraph circuits. Equipment has also been installed on a 39-mi. radio beam link in Canada.

Telephones and Facsimile

Some roads are replacing manual telephone switchboard installations in their general offices with modern dial automatic exchanges, thus expediting telephone service between offices and to and from outside commercial lines. Other roads are improving public telephone service in their larger ticket offices to handle incoming phone calls more efficiently. Where telegraph has been employed for train dispatching, numerous roads are rapidly replacing it with the telephone system. This has expedited the delivery of train orders and the movements of trains. Several roads in the United States and Canada are using carrier to enable the centralization of dispatchers' offices, regardless of the distance between the dispatched district and the dispatchers' office.

While still in the stages of development, facsimile communication by land-wire lines and radio will eventually have its place in the railway industry. This type of communication employs machines which are capable of transmitting and receiving black and white typed, sketched, printed or photographic material, and its use in the transmission of train orders is now under investigation.

Another phase of communications is the use of space radio and inductive communication systems between the head and rear ends of trains, and from trains to wayside offices. By the use of walkie-talkie units, any member of the train crew walking alongside of the train can talk to the engineman in his cab or to another member of the crew in the caboose. This type of communications is also playing a valuable part in railroad yard and terminal operations, as well as on railroad tug boats in harbor operations.

During the past year the Federal Communications

Commission proposed a number of amendments to its rules and regulations governing the assignment of frequencies to fixed and mobile services. With the strides that have been made in the use of radio, more channels for railroad communications have been advocated. The roads are said to feel that the F. C. C. should not adopt any plan not providing an adequate number of channels to meet at least the minimum presently forseeable needs. A plan has already been advanced by one member of the F. C. C. staff, which would provide additional channels.

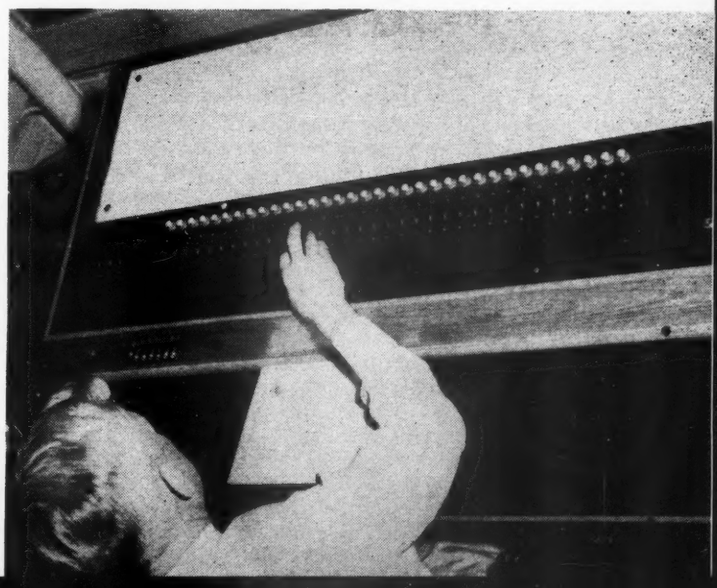
Another means of expediting rail operations has been through the medium of talk-back loud-speaker installations in freight classification yards, thus enabling constant contact between the yardmasters and members of the yard crews. Many roads have installed loud-speakers in their larger passenger stations for making train announcements, paging patrons, and even for providing musical entertainment. Similar installations in freighthouses have expedited the loading and unloading of freight, thus enabling better service to shippers.

Communications on Trains

Several roads, in cooperation with the Bell System and the independent telephone companies, have installed public telephone service on their trains, thus enabling passengers to call their homes or offices, or passengers on other moving trains so equipped. The progress on this facility has been rapid for the last year in the United States, but one of the first extensive experiments in its use was on one of the Canadian railroads in 1929.

Many railroads have made installations of intra-train telephone systems on their passenger trains. This enables passengers to call from one end of the train to the other, thus saving them considerable walking, especially on long trains. These systems are also saving train time, in that the members of the crew can use them between certain parts of the train and in talking to members of the engine crew. The past year has also seen some rapid strides in the field of passenger entertainment systems on trains. A number of roads have installed standard broadcast radio systems, wire recorded music and train announcement systems to engender a more friendly atmosphere among passengers.

Thus the progress in railway communications during 1947 has been good, but the needs for more and more modern communications will continue to grow as the railroads face increased competition by the other common carriers in years to come.



Top—With intra-train telephone installations such as this the conductor may speak to the engineer in his cab and give him any instructions that may be necessary

Middle—Public telephone installations such as this one permit passengers to call their homes and offices. Passenger representative is shown placing such a call

Bottom—By means of loud-speakers placed at strategic points throughout large freight-classification yards, yardmasters are able to maintain constant contact with members of crews working in the yards

SHOP EQUIPMENT NEEDS ARE CHANGING

The growing numbers of Diesel-electric locomotives are causing railroads to look at maintenance problem in different light — Existing shops offer opportunities for economies

By **H. C. WILCOX**
Associate Editor

In spite of the fact that the trend, in the past six or seven years, has definitely been in the direction of Diesel power it is worth while to remind ourselves periodically that of the total number of locomotives in service in the United States, 40,072, 88 per cent are still steam units, 10.5 per cent are Diesel-electric and 1.5 per cent are electric. In the 10 months just passed, the railroads of the United States added to their inventory of Diesel-electric locomotives by 524 units and decreased the inventory of steam units by 1,814. At the 1947 rate of replacement it is obvious that, for many years to come, the major job of the equipment maintenance departments of the majority of railroads will be the maintenance of steam power, while at the same time new repair facilities will have to be built or existing facilities adapted to repair work on newer types of motive power.

A factor of far greater importance in the maintenance of cars and locomotives and the facilities with which this work is carried on is the tremendous increase in the cost of labor and materials. When it is considered that an hour of labor in 1947 costs almost twice as much as it did in prewar days and that the actual productiveness of that hour of labor is considerably less than it formerly was it is difficult to escape the conclusion that labor is an expensive commodity.

When it is considered that steam locomotive repairs still represent the largest item of railway operating expense, that they are the major part of the maintenance department's job, and that such items as the cost of labor and materials, over which it has no control, are rapidly increasing, it seems most surprising that there is an evident reluctance on the part of the railroads to embark on modernization programs with respect to new and existing shops and their equipment that are aimed directly at a reduction in the man-hours of labor required in equipment maintenance work and the resultant cost thereof.

Each year *Railway Age* conducts a survey of the buying of the railroads in the matter of machine tools and shop equipment and in 1947, as shown by reports from 76 roads representing 93 per cent of the route mileage of the country and more than 90 per cent of the locomotive and car ownership, the buying of shop equipment products followed much the same course as the previous year, with only a few roads showing evidence of having entered the market on a large-program basis. There was, however, a continuance of buying for the modernization of shops performing wheel and axle work and a noticeable increase in purchases of cranes, hoists and mobile material handling equipment which, in itself, offers some evidence of a consciousness on the part of shop management that manual labor is an expensive luxury to be eliminated as rapidly as possible.

There was also evidence that the establishment of shops for the repair of Diesel-electric locomotives has required the purchase of new types of shop equipment, principally for electrical and Diesel engine repairs, which have not heretofore been ordered in as substantial quantities as is now the case. As the number of motive power units of this type increases and as those now in service accumulate mileage, the great increase in the heavy repair work required will necessitate further increases in the purchase of shop equipment items in this category.

Engineering Study Needed

It is rather difficult to understand why railroad management seems to be overlooking what appears to be a real opportunity to do a job in the reduction of maintenance-of-equipment costs, particularly with respect to motive power. Such a job cannot be done, however, as long as railroad officers adopt an attitude of doing nothing about the repair facilities used for the maintenance and servicing of steam power and assume that Diesel-electric locomotive maintenance is something so entirely foreign to the repair problems of the past that it cannot be considered in the same light. Both types of motive power are an extremely important part of railroad operation and both are deserving of equal consideration in the matter of attention to maintenance costs and facilities. Yet steam power, representing as it does the major part of the inventory, is certainly not getting its share of the attention in the studies that should be made with the objective of reducing shop and engine terminal costs.

There is hardly a steam locomotive repair plant in the country about which two important criticisms cannot be made—they have too much excess capacity in the wrong places, and they are equipped for the most part with obsolete machine tools and shop equipment.

Up to the period of 1925-1930 railroad operations were expanding and it was customary to allow for a certain degree of expansion in planning and building

shops. That meant that shops built prior to that time were large shops, both in the matter of floor space of individual buildings and the area of the plant property on which the buildings were located. Since that time expansion in railroad operations, except during the war period, has practically ceased and the change in the character of steam locomotive design, shop methods, etc., have all tended to reduce the time a locomotive remains in the shop for repairs and the balance between boiler and machinery repairs.

Most steam locomotive shops are not only too big for the job that has to be done today but they are spread over too much space. This is reflected in the cost of handling materials and parts from one point to another in the shop and also in the time required to handle such parts. This time is expensive time because the locomotive is not in revenue service. Reduction in shop time also makes possible some reduction in the number of motive power units which a railroad must have to protect its service and any reduction in units to perform a given service results in more favorable utilization.

Every railroad that has built a Diesel shop has built a relatively small, compact unit in which the departmental work is so systematized and arranged that the time required for the handling of materials and parts is reduced to a minimum. Also, any railroad that would embark on an entirely new steam locomotive repair shop, would, no doubt, start from this base. The few new engine terminals that have been built are testimony to the logic of this course.

Once again, the fact is that the job of repairing steam locomotives is going to be with us for many years to come and for every one of those future years that the obsolete facilities now in use are continued in use the cost will be much higher than it should be. The cost of locomotive repairs consists of direct labor, finished and unfinished materials, machining time, handling time, and shop "overhead." The last three items are controllable items and the amount of direct labor, used mostly for assembling and erecting, is also controllable to the extent that up-to-date and efficient shop facilities are provided for the purpose of reducing to a minimum the employment of manual labor for any job that can be done more rapidly and at less expense by tools or machinery.

It has been said more than once by shop superintendents that it would be a blessing in disguise if something were to happen that would require the consolidation of shop facilities into more compact units but it seems that such a course cannot be pursued except in those cases where someone has had the courage and business foresight to order the abandonment of shop units and the consolidation of operations from those units with others at existing locations. Such a course has definite advantages, for the process of forcing consolidation of repair work imposes upon the remaining shops an additional burden which demonstrates in most cases the definite limitations in the capacity of obsolete production units. A machine tool that can coast along on a production rate of a few pieces an hour may be considered by shop management to be an entirely adequate machine tool with no obvious reason why it should be replaced with one of greater capacity. When, however, the imposition of added requirements creates a production demand that is far beyond the capacity of the existing machine then the greater productive capacity of a modern machine dictates the necessity of replacement.

It is a characteristic of any piece of machinery that its maintenance cost increases steadily with age. Yet it seems to have been a peculiarity of the railroad industry to have assumed that the life of a machine tool is well-nigh eternal, for from 50 to 70 per cent of the major machine tool units in practically all railroad shops have outlived their economic life as measured by any consideration of productive capacity, maintenance cost or suitabilty to present requirements.

A case in point is that of carbide tools. Other industries have so thoroughly demonstrated the value of carbide tools that many railroads have installed a few new machine tools having the capacity and characteristics which adapt them to the use of carbide tools. These isolated installations have shown the superiority of carbides on almost any type of railroad machining operation, from driving box brasses to locomotive tires. Why then, is shop after shop still going along with ancient machines when experience has proved that, in many instances three or four modern machine units can easily take the place of as many as ten to twelve older machines and effect savings that will pay for the new machines in three or four years?

The Truth About Diesel Shops

It is reasonably safe to say that one cannot predict the future character of Diesel shops by those that are in existence today. They are few in number and have been designed and built to care for a relatively small volume of repair work, mostly of a running-repair nature, on a relatively small number of motive power units. Because the locomotives of that type are few in number, viewed from the standpoint of the individual road, and because the manufacturers have done a good job in supplying repair parts, it has neither been desirable nor economical for the railroads to acquire repair parts on other than a replacement basis, almost entirely from the manufacturer of the original equipment. As the number of locomotives in service increases, the railroads are going to find themselves in the position, as some of the larger users of Diesel power already have, of exploring the possibilities of producing many of the parts for locomotives in their own shops. Whether such a course will be wise will depend on a careful study of the economics of the problem—the cost, the quality of the finished product, the ability to secure parts when and as needed without maintaining distorted inventories and, finally, the necessity of finding work for a labor force that must be maintained to protect service in times of peak traffic. It is quite probable that in the long run the practice that has been developed over a period of many years in steam locomotive repair work will also be found logical in the case of other types of motive power.

One thing is certain. If the existing shops for the maintenance of steam power are not modernized the cost of maintaining that type of power is going to increase out of proportion. The opportunities for economics through modernization of shop facilities are greater than ever before.

Interior of new Canadian National diner

RATE RISES COME HARD IN CANADA

There have been no increase at all and roads struggle to improve their properties while net dwindles in the face of rising gross

By OUR CORRESPONDENT AT OTTAWA

The railways of Canada have a revenue problem similar to that of their neighbors south of the international boundary—and one which the regulatory authorities have not been quick to act upon. Fifteen months have passed since the Canadian lines applied to the Board of Transport Commissioners at Ottawa for a flat increase of 30 per cent in freight rates and with no provision for regional rate favors. So protracted have been the hearings that, late in 1947, the Canadian Pacific, through its counsel, said the Railway Association, which comprises all the Canadian roads, including the publicly-owned Canadian National, might soon be forced to ask for an additional increase to take care of the expected added revenues "lost" during the year-long hearings in 1947. The railways, in fact, did late last year raise certain competitive rates, but a storm of opposition developed and the Transport Commissioners finally disallowed these increases. Present indications are that the decision of the board on the 30 per cent increase application may not be made known much before Easter. If this proves true, it will be the longest delay in dealing with a freight rate case in Canadian railway history.

Railway freight rates and wages and the construction of new lines have been a political football for at least fifty years in the Dominion, and 1947 continued this tradition. Seven of the nine provincial governments were represented by counsel in the rate case, and these lawyers, particularly those from the radical West, lost no opportunity to hammer the privately-owned road.

Because the Canadian National, through the compulsion of circumstance, happens to be publicly owned —although it is operated as a private corporation— opponents of the rate increase among the provincial governments concentrated their attack on the Canadian Pacific. The onslaught centered upon the Canadian Pacific's accounting methods, opposing counsel insisting that the C.P.R. was in various instances charging too much to maintenance and that it was, in effect, building a fictitious case for higher rates. These assertions were vigorously denied by Canadian Pacific counsel. Because of the public ownership of the C.N.R. and the consequent scrutiny of its expenditures by a special parliamentary committee at Ottawa, the Canadian National is not vulnerable to such charges as those leveled at the C.P.R.; and there are some Western Socialists who do not conceal their desire to force the C.P.R. into public ownership.

The Canadian Parliament in 1897 authorized a sub-

sidy to the Canadian Pacific towards the construction of a line from Lethbridge, Alta., through the Crow's Nest Pass of the Rockies westward to Nelson, B. C. The amount of subsidy actually paid was $3,400,000. In return the railway agreed to cut rates on grain and flour on all C.P.R. lines from all points west of Fort William to Fort William and Port Arthur, and all points east of those cities at the head of the Lakes; there were also cuts in freight rates on a specified list of other commodities. These rate cuts were to apply to existing lines of the C.P.R. but eventually the reductions were extended to lines subsequently constructed, and ultimately they spread also to the Canadian National, in the same way that the land-grant rates in the States were in effect on other than land-grant roads. C.P.R. counsel in the current rate case stated that the Crow's Nest agreement had cost his company alone not less than $58,000,000 in sub-standard rates—a pretty high price to be paid for a subsidy of less than $3,500,000.

When rates had to be adjusted upward during and after World War I, the Crow's Nest differentials remained to plague rate-making and rate relationships. In 1927 the Railway Board restricted the freight rate cuts under the agreement to grain and flour moving west for export. Meantime, however, the Canadian railways have received no general freight rate increases for more than 20 years. During 1946 there was a flat wage increase of 10 cents an hour to all employees and, late in 1947, holidays with pay were granted.

Why have not the central provinces—Ontario and Quebec—been represented by counsel in the rate hearings? In those provinces are located most of the nation's industries, and shippers there have more facilities for truck and water transportation than do either the Western or the Maritime provinces. One shrewd student of this problem offers this explanation:

"They seem to keep their heads in Ontario and Quebec when it comes to rail transportation. They realize more fully than do the people of Western Canada that, if freight rates are kept down, taxes are likely to rise; and that it would be better for the shipper to pay the railways for the service he gets than to ask all the other people to help pay the shipper's bill through taxation."

Still another possible explanation is that, while the C.N.R. is usually associated with the C.P.R. in rate increase applications, the government-owned road is not ultimately so clearly a beneficiary of higher rates or a sufferer from low ones. That is to say, if the C.N.R. profits from its operations, the profits go into the Dominion treasury. If it loses, the loss is borne by the treasury. Meantime, the privately-owned road is in no such favorable position. Consequently, it is regarded as the target for the opposition—yet, if the C.P.R. is successful, it has to share the fruits of its victory with all the nation's taxpayers.

In surveying the year 1947 and making a forecast for 1948, W. M. Neal, chairman and president of the Canadian Pacific, in his year-end statement pointed out that the C.P.R. had spent $47,000,000 on new rolling stock and motive power alone, in order better to serve its patrons. It has prepared plans for further expansion in 1948 but, he added, "there has to be a note of caution. . . . Plans for physical improvements are of little use if they cannot be carried out for lack of funds with which to finance them. . . . The Canadian Pacific has made great contributions to the economic development of Canada. It is the intention of the management to make sure that the company at no point fails to render the services to the nation for which it was established, but these services can only be rendered to the extent to which it is possible to provide them on a sound economic basis."

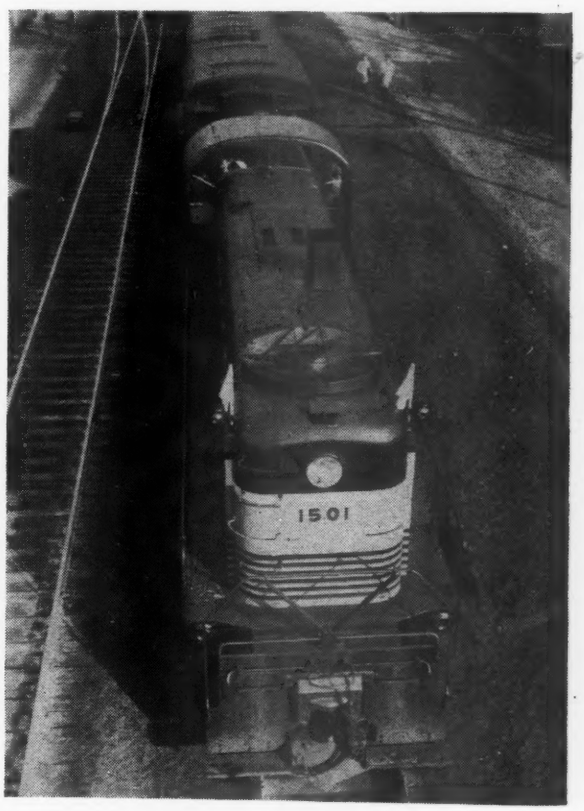
C. P. R. Improvements

Mr. Neal went on to enumerate some of the C.P.R.'s physical improvements as follows:

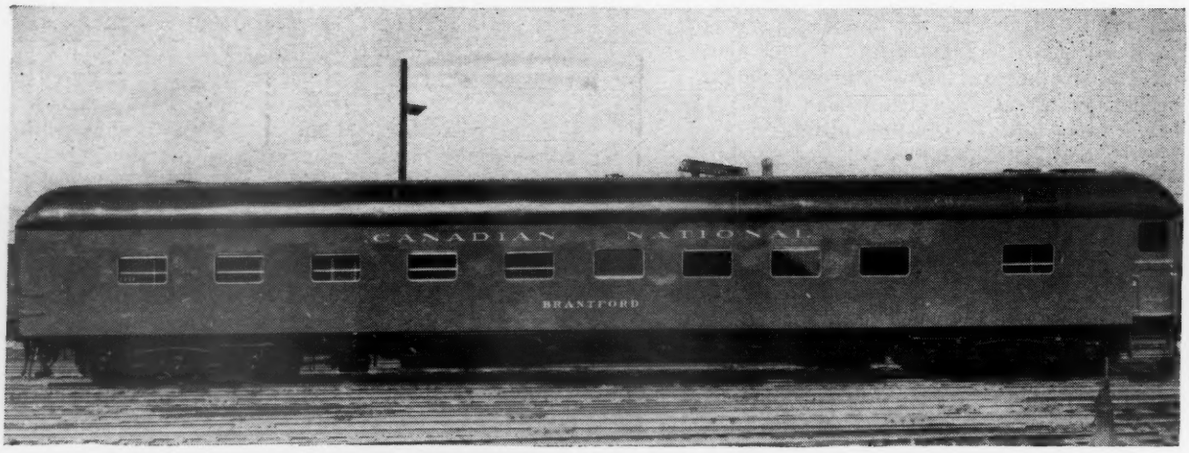
"Long range plans include further installations of the automatic block signal system; further expansion of the use of Diesel engines for greater efficiency in major terminals, and the beginning of the installation of a large modern freight terminal at Montreal.

"Cars ordered during the year include 3,250 steel-sheathed box cars for grain, flour and paper traffic; 500 overhead-tank refrigerator cars, essential to the safe delivery of perishable products; 500 triple hopper cars; 500 gondola cars; 120 automobile cars; 100 covered hopper cars of new design, all of importance to our heavy industries; 10 mail express cars; 10 baggage express cars; 6 horse express cars and 50 cabooses.

"In November the first of 35 ultra-modern day coaches, featuring all that is best in new design and construction, was placed in service. In addition, five



Canadian Pacific Diesel-electric switcher used in tests to determine the applicability of this power to all varieties of operating conditions encountered in Canada



Above—New Canadian National all-room sleeping car. Left—A bedroom-buffet-lounge car on the same road

sleeping cars, built in keeping with the current trend towards enclosed accommodation for overnight runs, are expected to be delivered to the company and placed in service early in 1948. The year 1947 saw considerable additions to the locomotive fleet. Of particular importance have been the exhaustive tests carried out with Diesel locomotives. The results of these tests, in eastern and western Canada under all weather and geographic conditions, are being thoroughly studied, with a view to determining where Diesel power can be used efficiently and to the advantage of the Canadian public in through service.

"Long study of the waterfront situation at Nanaino, B.C., has resulted in the drawing up of plans for a land and sea terminal on the waterfront at that point. This is a major development, and will be used by ships, trains, and buses, and will include a modern new passenger station on the wharf, a depot for freight trucks, and a garage for servicing buses and trucks.

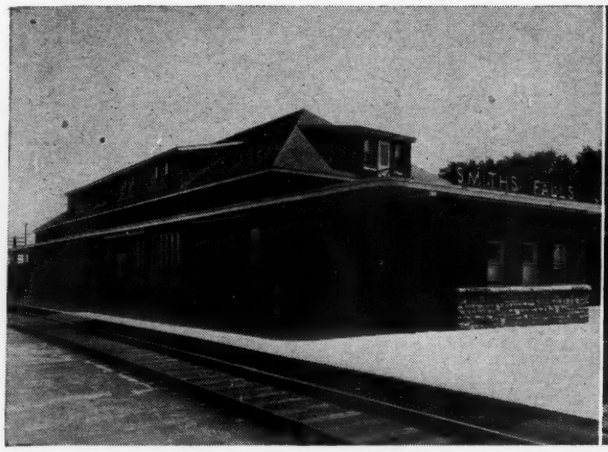
"A novel technical development in telephone dispatching has been placed in service on a trial basis on main and branch lines in the Montreal, Ottawa and Smith Falls areas and has produced outstanding results in increasing the ease, flexibility and perfection of operation of these circuits, minimizing the possibility of error due to overloading of long circuit networks. Essentially, it involves the use of carrier current equipment and the latest type of telephone repeaters in an original and unique arrangement, the full design of which was evolved by the communications department's engineering personnel. It permits the tying or untying of circuits at the will of the dispatcher to meet density of traffic or other requirements in such a manner as to give maximum transmission efficiency with a minimum of effort."

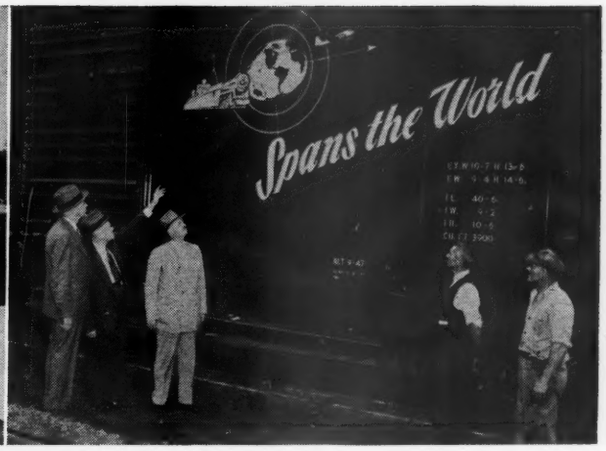
President Neal reported great progress by the company in 1947 in restoring its world-wide steamship operations. A former German liner was purchased and renamed the "Beaverbrae" and will be in service early in 1948 to bring in badly needed immigrants. The company's North Atlantic service was resumed last June with the arrival of the "Empress of Canada" in Montreal. The C.P.R. now has four fast cargo liners in operation in this service, which are doing a vital job in transporting food supplies from the Dominion to the mother country. Other vessels will be added to the service in 1948—but, probably, full reestablishment of the C.P.R. fleet on a large scale will not come until "construction costs reach a level which will permit building on a sound basis." New ship construction has not, however, been halted.

C.P.R. operations in aviation likewise were expanded. It now has 59 aircraft in service on 5,370 route-miles, flying into Alaska, Yukon, the Northwest Territories and Laborador.

Emphasizes Revenue Needs

R. C. Vaughan, chairman and president of the Canadian National, likewise stressed his company's need for increased revenues through higher rates if its extensive program of additions and improvements is to be continued, as the national interest requires. The C.N.R. had gross revenues of approximately $436,883,000 in 1947—a record for peace-time. Its net operat-





Left—One of the Canadian Pacific's 1947 crop of new stations.

Right—The Canadian Pacific starts painting its famous slogan on its freight cars

ing revenue totaled about $39,000,000, or less than in 1946.

Mr. Vaughan listed increased costs in 1947 over 1946 for the C.N.R. as follows: $22,184,000 in higher payroll expense; a 12.8 per cent rise in the price of materials; $4,230,000 more for locomotive fuel; almost $2,000,000 more for snow removal. "Meantime," the C.N.R. president pointed out, "the company had to continue the sale of transportation services at enforced ceilings established roughly 25 years ago. . . . In 1947 payroll and materials cost the C.N.R. in excess of $100,000,000 more than they would have cost at 1939 rates. . . . The pressure continues upward . . . and the company is currently faced with demands for increases in wages which, if granted in full, would add $90,000,000 to the payroll of the C.N.R."

The C.N.R. executive listed 1939-1947 price increases in things the railway buys as follows: General materials, 75 per cent; steel, 51 per cent; rail, 50 per cent; fuel, 125 per cent; crossties, 121 per cent; other forest products, 225 per cent; labor, 44 per cent.

"Where costs can be controlled, they are rigidly controlled," he continued. "Through the budget system, every expenditure is scanned carefully beforehand to make sure that every dollar will earn its keep. It was with the idea of improving service at lower operating costs that the company, during 1947, arranged to apply Dieselization to all of its lines in Prince Edward Island, increased the numbers of similar types of locomotives elsewhere on the system and, just before the close of the year, placed orders for two big and very powerful Diesel road locomotives for general service work, the first of their kind in Canada. To provide better service to the public and to increase its passenger revenues the company, over a year ago, ordered 30 de luxe passenger coaches and embarked upon an extensive program of modernization of dining, sleeping and chair cars in its own shops, when it became apparent that new equipment of such types could not be obtained elsewhere, for the time being. To provide better service to agriculture and industry and thereby improve its own earning position that the company placed orders for 6,500 items of freight equipment of which 5,200 were box cars. So far 1,050 box cars have been delivered.

"While increased traffic is desirable and must always be sought, it should not be assumed that increased traffic is, of itself, sufficient to offset rising costs and halt decreases in earnings." In this connection Mr. Vaughan cited the experience of the United States lines, where traffic is heavier than in Canada but where existing revenues are still inadequate despite three freight-rate increases in 18 months, one a general overall advance of 6.5 per cent on July 1, 1946; a raising of this increase to 17.6 per cent on January 1, 1947; and a third increase on October 13, 1947, averaging 8.9 per cent over current rates and constituting an interim allowance for a hoped-for advance of 28 per cent above the 1939 level. In Canada the railways have not as yet been granted any upward revision whatever of freight or passenger basic rates.

Deficit After Interest

"The application for a 30 per cent increase in freight tariffs, filed by the Railway Association of Canada in October, 1946," Mr. Vaughan went on to say, "is still under consideration by the Board of Transport Commissioners. Meanwhile our operating costs continue to mount and will result in a deficit for the year after all interest charges on government loans are taken into account. The need for additional revenues appears to be clear."

The Canadian National, in common with other roads on the North American continent, "found itself hard-pressed to meet all the demands of shippers for freight cars, particularly box cars."

Despite difficulties, however, the company "succeeded in recovering a lot of ground that was lost during the war." Extensive repairs to track and structures were made. The passenger equipment picture is not as bright as had been hoped, "but the new coaches and the modernization program already referred to will help us and it is hoped that during 1948 we may be able to place orders for various types of passenger carrying cars that were not obtainable during 1947."

Like its privately-owned counterpart, the Canadian Pacific, the Canadian National reported a considerable improvement during the year in its steamship service.

MEXICAN RAILWAYS ON UPGRADE IN 1947

Gross revenues continued to climb with increased freight traffic, but higher operating expenses caused deficit; line rehabilitation advanced; labor conditions improved

By J. M. OROZCO ESCOBOSA
Our Mexican Correspondent

With the change in government regime on December 1, 1946, the year of 1947 brought a complete change in the executive staff of the National Railways of Mexico. Among the various changes, Manuel R. Palacios became general manager in lieu of Pablo M. Hernandez; Raul Nevarez was appointed assistant general manager in place of C. C. Rochin, who has taken charge of the transportation, maintenance-of-way and car service departments; Pedro Angelini, assistant general manager, replaced Pedro C. Morales in charge of the mechanical and instruction departments, and Amador Lopez, assistant general manager in charge of the accounting, statistical, medical and train auditors. J. Tavera was appointed general superintendent of motive power and machinery in place of Pedro Angelini; F. Malagamba was appointed chief engineer in lieu of Camilo Piconni; Alfonso Sotomayor was appointed general treasurer in place of J. Guadalupe Estrada, who was appointed general superintendent of express in the place of Jose Hutierrez. Later Mr. Sotomayor was appointed assistant general manager in charge of the Mexican Railway, Luciano Toledo having taken charge as general treasurer. F. O'Reilly was appointed chief of the personnel department, in place of Daniel Rangel, who resigned.

Line Reconstruction and Rehabilitation

By the middle of March, 1947, the new management began work on widening the narrow-gage tracks of the Interoceanic Railway. This line, formerly British owned, was bought by the Mexican government, but has been operated under a heavy loss, the deficit having reached the twenty million peso* mark a year. However, it is expected that once the road has been completely converted to standard gage, the loss will be considerably reduced, if not entirely eliminated.

New 110- and 112-lb. rail has been laid between San Lorenzo and Oriental, a distance of 122 kilometers, and standard-gage trains have been running since December 6, using the standard-gage tracks over the Queretaro and Mexico divisions, from Mexico City to San Lorenzo. The stretch from Oriental to Veracruz, a distance of 256 kilometers, was expected to be completed by the end of 1947, and official inauguration of standard-gage service is expected to take place the early part of January, 1948.

A total of 27,000,000 pesos has been spent in this work, and 1,400 men have been engaged on the job. It is expected that the additional facilities required, such as building and ballasting, 50 per cent of which are still unfinished, will cost approximately 8,000,000 pesos.

Notwithstanding the 80 kilometers of comparatively high mountain territory traversed by this road, there was only one tunnel to contend with, which was converted into a cut.

The Mexico City-Laredo line has been almost completely rehabilitated with 112-lb. rail. The management plans to start rehabilitation next year of the lines from Mexico City to El Paso and Mexico City to Manzanillo, on the west coast, the financial plan for which is now being set up by the government.

Diesel power has helped considerably in train operation, and where such power is used, passenger trains are now running on schedule. Another 2,000-hp. Baldwin Diesel-electric locomotive was expected to reach Mexico before the end of 1947. This locomotive will probably be used on the Interoceanic line from Mexico City to Veracruz.

The extensive training program started by the National lines in 1946 has continued, and Mr. Palacios is giving this matter preferred attention. Another school will shortly be started at San Luis Potosi, and three additional passenger cars are being adapted for use as instruction cars on the line.

Relations between management and labor have been very satisfactory, and there seems to be a high degree of mutual understanding.

Traffic Trends During 1947

The fact that the Mexican "bracers" who worked during the war on the American railroads and farms returned to Mexico during 1946 helped to establish a peak in passenger travel in that year, but there was a marked decrease in such travel in 1947. Freight traffic, on the other hand, showed a decided gain during the first eight months of 1947 as compared with 1946, both international and local. All of the gateways, except Eagle Pass, showed increases in imports. Exports decreased at all gateways except Brownsville, which showed an increase large enough

* The peso today is equivalent to 21 cents in American money.

Power tools and machines are finding increasing acceptance on the National Railways. This view shows use of pneumatic spike drivers on gage-change work

to offset the decreases. Cotton and silver bullion were the principal commodities that increased traffic.

Selected Operating Statistics (First 8 Months 1947-1946)

	1947	1946	Inc. or Dec.	Per cent change
Locomotive klms.	28,800,091	27,644,422	+155,669	4.18
Freight train klms.	11,940,379	11,660,174	+280,205	2.4
Passenger train klms.	6,422,183	6,411,908	+10,275	0.2
Mixed and spec. klms.	2,937,667	2,958,200	−20,533	0.7
Non-revenue train klms.	230,694	291,028	−60,334	20.7
Total train klms.	21,530,923	21,321,310	+209,613	1.0
Passenger car klms.	61,315,941	61,295,500	+20,441	..
Frt. loaded car klms.	182,412,801	174,414,703	+7,998,098	4.6
Frt. empty car klms.	90,813,605	80,955,458	+9,858,147	12.2
Total frt. car klms.	273,226,406	255,370,161	+17,856,245	7.0
Net ton-klms. (1,000s)	5,706,074	5,342,692	+363,382	6.8
Gross ton-klms. (1,000)	12,274,217	11,508,398	+765,819	6.7
Total number cars loaded	324,391	323,279	+1,112	0.3
Net tons per train klm.	448	428	+20	4.7
Gross tons per train klm.	917	874	+43	4.9
Speed per hr. (klms.) frt.	20	18	+2	11.1
Gross ton-klms. per train hr.	18,326	15,768	+2,558	16.2
Frt. locomotive klms. daily	168	170	−2	1.2
Liters oil per 1,000 g. t. klms., frt.	49.1	51.7	−2.6	5.0
Per cent loaded car klms. to total	66.8	68.3	−1.5	2.2
Car klms. per car daily	49.9	43.8	+6.1	13.9
Net tons per car	31.3	30.6	+0.7	2.3
Cars on line daily	22,539	23,977	−1,438	6.0
Klms. line operated	11,718	11,728	−10	0.1

Loaded Cars Interchanged—9 Months

	Imports		Exports	
	1947	1946	1947	1946
Laredo	16,199	13,891	6,930	7,973
El Paso	3,765	2,673	4,300	4,793
Eagle Pass	3,302	3,401	1,380	1,856
Brownsville	2,886	2,485	4,986	1,958
Totals	26,152	22,450	17,596	16,580

The table below shows the trend of traffic by commodities during the first seven months of 1947, compared with the same period of 1946, reflecting an increase of 826,678 tons.

Trend of Traffic—7 Months

Commodity	1947 tons	1946 tons
Forest products	350,803	398,847
Agricultural products	2,253,806	1,943,278
Animal and animal products	100,138	195,295
Inorganic products	4,253,493	3,571,369
General merchandise	894,658	917,431
Totals	7,852,898	7,026,220

The increase of 363,382 net ton-kilometers handled on all trains, as shown in the table of operating statistics, created an increase of 18,415,147 pesos in freight earnings. This increase, however, did not reach its peak because of the fact that there was a decrease of 95,157 tons in the shipments of animals and animal products, due to the embargo because of the foot and mouth disease. On the other hand, there was a comparatively heavy increase in shipments of inorganic products, to which lower freight rates are applied.

Gross railway earnings during the first eight months of 1947 amounted to 275,781,214 pesos, compared with 267,001,765 pesos in the same period of 1946—an increase of 3.29 per cent. Freight revenues showed an increase from 168,282,657 pesos to 186,697,804 pesos, or 10.94 per cent; passenger revenues decreased from 57,722,786 pesos to 50,514,959 pesos, or 12.49 per cent; baggage earnings decreased from 260,717 pesos to 233,113 pesos, or 10.59 per cent; express earnings decreased from 23,122,611 to 20,719,741 pesos, or 10.39 per cent; telegraph earnings decreased from 26,830 pesos to 22,012 pesos, or 17.96 per cent; and miscellaneous earnings increased from 10,652,883 pesos to 12,044,181 pesos, or 13.06 per cent. Total operating earnings increased from 260,068,483 pesos to 270,231,809 pesos, or 3.9 per cent, and other than operating revenues decreased from 6,933,282 pesos to 5,549,405 pesos, or 19.96 per cent.

Total railway expenses increased from 262,960,483 pesos to 302,917,980 pesos, or 15.20 per cent, during the first eight months of 1947, as compared with the same period of the previous year. This was due largely to the increase in salaries of 52.50 pesos per worker per month, beginning October, 1946, and because of the higher price of fuel oil, which increase amounts to over a million pesos a month, and continued increase in the prices of all other materials. During these same two periods maintenance-of-way expenses increased from 50,703,307 pesos to 54,975,951 pesos, or 8.43 per cent; mechanical department expenses increased from 73,777,182 pesos to 85,321,988 pesos, or 15.64 per cent; traffic department expenses increased from 1,999,593 pesos to 2,333,037 pesos, or 16.68 per cent; transportation department expenses increased from 92,882,438 pesos to 117,004,518 pesos, or 25.97 per cent; express department expenses increased from 12,786,284 pesos to 13,758,826 pesos, or 7.61 per cent; miscellaneous expenses increased from 713,019 pesos to 984,952 pesos, or 38.14 per cent; and general expenses increased from 14,647,186 pesos to 16,866,976 pesos, or 15.16 per cent. Total operating expenses increased from 247,509,008 pesos to 292,246,248 pesos, or 18.07 per cent. Other than operating expenses decreased from 15,451,475 pesos to 10,671,660 pesos, or 30.93 per cent, principally because of reduction in per diem payments due to the return of a good number of foreign cars to American lines. Total railroad expenses increased from 262,960,483 pesos to 302,917,908 pesos, or 15.20 per cent.

The higher increase in expenses, as compared with the increase in earnings, brought about a marked decrease in net railroad earnings, which dropped from 4,041,281 pesos to a deficit of 27,136,694. However, inasmuch as the increase in salaries granted by the previous government administration amounted to more than 24,000,000 pesos in the eight-months' period covered, the government must now make up the deficit.

The increase of 363,382,000 in net ton-kilometers, or

Making an open cut out of the only tunnel on the Interoceanic Railway as the work of converting this line to standard gage was started during the year

6.8 per cent, and the increase of 765,819,000, or 6.7 per cent, in gross ton-kilometers, reflect the upward trend in traffic during the first eight months of 1947, compared with the same period of 1946. This increase in traffic was handled with a smaller proportionate freight train-kilometers increase, which amounted to 2.4 per cent. Total locomotive-kilometers increased from 27,644,422 to 28,800,091, or 4.18 per cent. Increases were also shown in the loaded-car kilometers of 7,998,098, or 4.5 per cent, and of 9,858,147 empty-car kilometers, or 12.2 per cent.

The selected operating statistics included herein show that during the first eight months of 1947, compared with the same period of 1946, there was considerable improvement in the operation of trains, as, with the exception of the increase of 9,858,147, or 12.2 per cent, in the freight empty-car kilometers, all of the other operating factors are favorable. Heavier trains were moved, showing an increase from 428 to 448 net tons per train-kilometer, or 4.7 per cent, with an increase from 874 to 917 in the gross ton-kilometers, or 4.9 per cent. Speed of freight trains increased from 18 to 20 kilometers per hour, or 11.1 per cent. The latter two factors produced an increase from 15,768 to 18,326 gross ton-kilometers per train hour, or 16.2 per cent, which statistical unit is often used to determine the efficiency of train operation. Although there was a decrease from 68.3 to 66.8 in the percentage of loaded car kilometers to the total, car kilometers run per day were boosted from 43.8 to 49.9, or 6.1 per cent, and net tons loaded per car increased from 30.6 to 31.3. With 1,438 less cars on line, the number of cars loaded increased from 323,279 to 324,391.

Costs Greatly Increased

Labor repair costs per 1,000 kilometers run for passenger cars rose from 59.14 pesos to 77.69 pesos, or 31.4 per cent. Material costs increased from 27.33 pesos to 33.18 pesos, or 21.4 per cent. Labor costs for freight car repairs increased from 54.33 pesos to 63.65 pesos, or 17.15 per cent, per 1,000 kilometers run, and for material from 44.72 pesos to 50.24 pesos, or 12.3 per cent.

Back shop repair costs for labor, per 1,000 kilometers run, increased from 532.79 pesos to 650.11 pesos, or 22.0 per cent, and material costs from 242.31 pesos to 267.64 pesos, or 10.5 per cent. Running repair labor costs increased from 359.28 pesos to 468.10 pesos, or 30.3 per cent, and material costs increased from 79.24 pesos to 106.33 pesos, or 34.2 per cent.

One of the Diesel-electric locomotives being used in freight service on the National Mexican Railways

A REVIEW OF RAILWAY OPERATIONS IN 1947

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Postwar transition difficulties continued to plague the people of the United States in 1947. Due partly to international complications that delayed the return of the world to a peacetime basis, and partly to the unrestrained advance of inflation in this country, the year presented many questions of economic and national policy that have yet to be resolved.

The outstanding railway developments in 1947 were as follows: (1) The heaviest demand for freight transportation service in any peacetime year, (2) delays in new equipment deliveries, (3) continued decline in passenger traffic, (4) further rises in unit operating costs, and (5) inadequacy of rates and fares to meet these new costs. These developments featured a strenuous year.

Carloadings attained a greater volume in 1947 than in any year since 1930, surpassing even the loadings of the war years 1941 to 1945. Ton-mile aggregates exceeded every preceding year except 1943 to 1945. Largely because of longer hauls per ton and heavier loads per car in those three war years, their ton-mileage exceeded that of 1947, although 1947 carloadings were from 2½ to 6 per cent greater. Passenger traffic continued its postwar decline, although still far greater in volume than in the years immediately preceding the war.

CHART A

WEIGHTED INDEX OF RAILROAD UNIT COSTS-1939-47

(YEAR 1939=100)

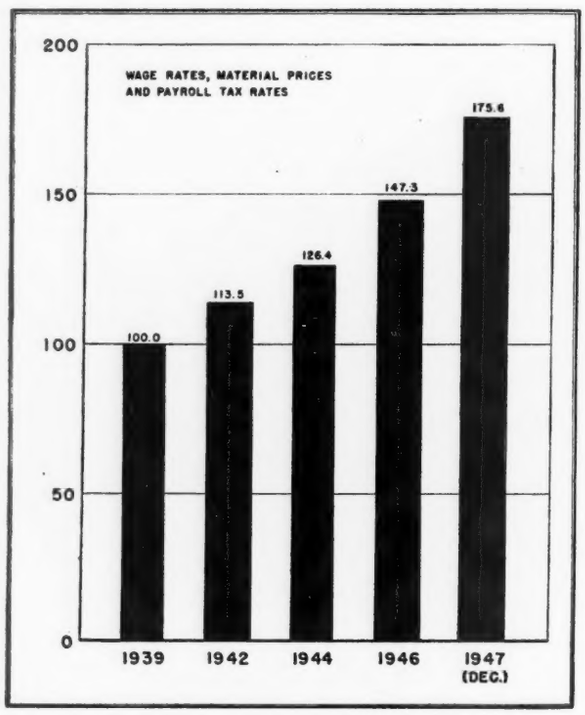
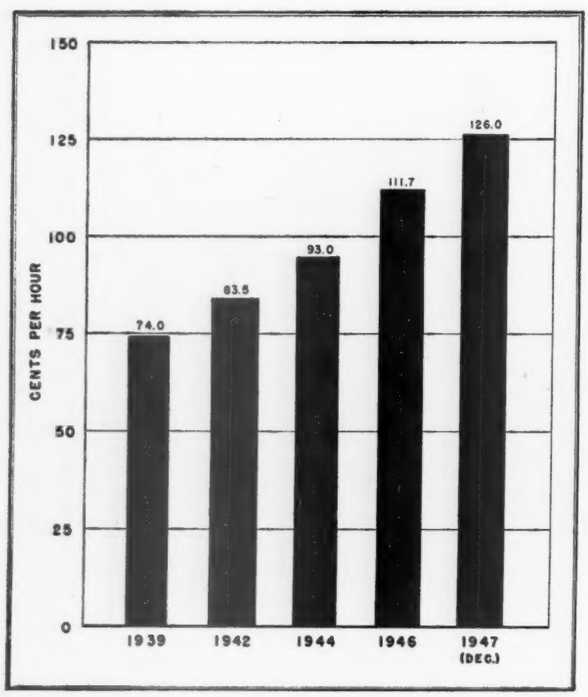


CHART B

RAILROAD WAGE RATES-1939-47

(AVERAGE STRAIGHT TIME RATE PER HOUR)



Rising costs of railroad operation may be measured by a weighted index of railroad wages, material prices, and payroll taxes. That index was higher in December, 1947, than the average of 1946 by 19.2 per cent, and was higher than in 1939 by 75.6 per cent (see Chart A).

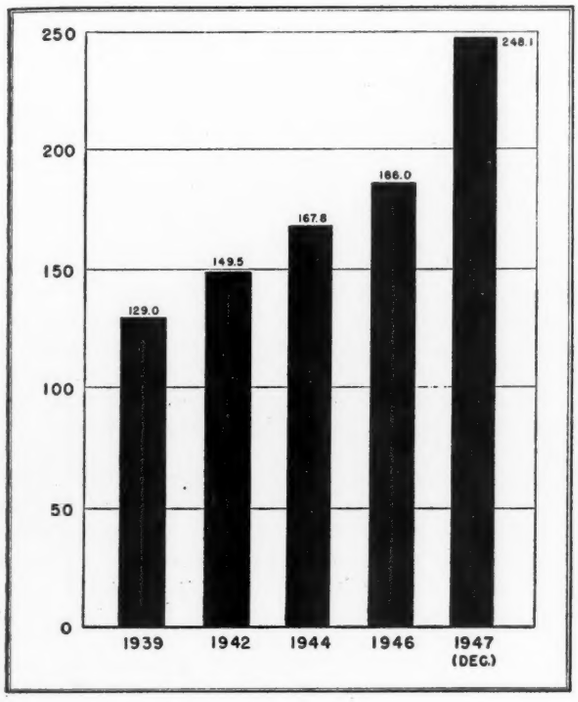
Increases in wage rates of 15½ cents per hour were granted to more than a million non-operating employees on September 1, and to 175,000 conductors and trainmen on November 1. These increases brought the average straight time rate of pay for railroad employees up to $1.26 per hour, compared with $0.74 in 1939 (see Chart B). Whatever settlement is finally reached with the 125,000 enginemen and firemen will further increase this average.

Material prices continued to rise in 1947. This was especially the case with coal, which bulks large in railroad purchases, but was also true of many other important products, such as iron and steel products, ties, lumber, and the like (see Chart C).

CHART C

INDEX OF RAILROAD MATERIAL PRICES- 1939-47

(MAY 1933 = 100)



Payroll tax rates took a sharp upward turn on January 1, 1947, as a result of passage of the Crosser Act in 1946. The levy on the railroads was increased to 8¾ per cent, compared with 6½ per cent in 1946 and 5¾ per cent in 1939. The rate was thus greater in 1947 than in 1946 by 34.6 per cent, and greater than in 1939 by 52.2 per cent.

These increases in operating cost factors, cumulatively affecting the aggregate of operating expenses and taxes, rendered the freight rate increase of 17.6 per cent on January 1 inadequate, and made it necessary for the railroads to apply for another and greater increase in the freight rate level. In addition, the Interstate Commerce Commission approved or permitted a number of upward adjustments in passenger fares, express rates, and mail pay rates, the nature of which will be outlined later.

The first application for increased freight rates was filed with the commission in July, followed by supplementary applications in September and December. These added up to an average increase of 29.2 per cent. The commission, docketing the application as Ex Parte No. 166, held a series of hearings from September 9 to December 20, authorized an interim increase of 8.9 per cent as of October 13, and at the year's end had the whole railroad proposal under consideration for final disposition.

Financial results of railroad operation in 1947 were somewhat better than those of 1946, aided by increased freight traffic volume and by the rate increase of 17.6 per cent on January 1. However, the net results were below reasonable requirements. Freight revenue in 1947 exceeded that of 1946 by $1,205 million, or 21 per cent, and total operating revenues were greater by $954 million, or 12½ per cent. Operating expenses and taxes increased $806 million, or 12 per cent. Net railway operating income, at $748 million, showed an appreciable increase over the $620 million of 1946, but represented a rate of return of only 3.32 per cent on the net investment of the carriers (after depreciation and amortization). Without further increases in rates and charges, such as proposed in Ex Parte No. 166, net railway operating income for 1948 would almost disappear, due to the impact of higher wage rates and material prices.

Because of an excess of equipment retirements over new installations, the railroads owned fewer locomotives and freight cars at the end of 1947 than at the beginning. Deliveries of new freight and passenger cars ran below expectations, and far below the number required for the prompt handling of available traffic. Even so, the railroads operated in 1947 with the greatest efficiency ever recorded in a year of peace. There is support for the view that new equipment will be made available in greater volume in 1948 than in 1947, and that the number of units in service may show a moderate increase by the time of the heavy traffic demand of the summer and autumn.

With this brief survey of the outstanding features of railroad operation in 1947, the several phases will be taken up for consideration. Rising costs will first receive attention, and then the rate situation, followed by a review of traffic and financial trends. The usual survey of various internal and external developments will then be presented, closing with a brief statement of the outlook for the railroad industry as it faces the responsibilities of another year.

Employment and Wages

Railroad employment in 1947 averaged 1,356,000, or about 3,000 fewer persons than were employed by the industry in 1946. The railroad payroll in 1947 aggregated $4,350 million, the greatest in history, and an increase over 1946 of $180 million. The increase was the result of (1) the wage award to nonoperating employees effective September 1; (2) the wage increase granted certain operating employees effective November 1; and (3) the fact that 1947 wages reflected the full annual effect of the second 1946 wage increase—the increase of 2½ cents per hour, effective on May 22, 1946.

The average straight time hourly rate of pay crossed the one dollar mark for the first time in 1946, when it stood at 111.7 cents per hour. The average for the year 1947 as a whole was 116.0 cents per hour, while the rate at the end of 1947—reflecting increased wages made effective during the latter part of the year—averaged about 126 cents per hour.

The straight time rate of pay of railroad employees averaged 74.0 cents per hour in 1939. The average at the end of 1947 was thus nearly one and three-quarters times that of 1939.

Average annual earnings of railroad employees also reached a new high in 1947, approximating $3,200, compared with $3,069 in 1946, and $1,887 in 1939.

Table I shows for 1947, for the preceding eight years, and for 1929, the average number of employees

of railways of Class I, the total payroll, average compensation per employee per year, and the average straight time rate of pay per hour.

Table I—Employees and Compensation

Year	Average number of employees	Total payroll (millions)	Compensation per employee per year	Average straight time rate per hour (cents)
1947*a*	1,356,000	$4,350	$3,200	116.0
1946	1,358,838	4,170	3,069	111.7
1945	1,419,505	3,862	2,721	93.3
1944	1,414,776	3,858	2,727	93.0
1943	1,355,114	3,521	2,598	89.3
1942	1,270,687	2,932	2,307	83.5
1941	1,139,925	2,332	2,045	76.9
1940	1,026,848	1,964	1,913	74.2
1939	987,675	1,863	1,887	74.0
1929	1,660,850	2,897	1,744	65.8

a Partially estimated.

Wage negotiations opened early in 1947, and continued to the end of the year. On March 25, 1947, the non-operating group of railroad employees—17 unions—served demands on the railroads for a wage increase of 20 cents per hour. These demands ran through the usual procedure of conference and mediation, and finally, on July 25, 1947, an agreement to arbitrate the dispute was reached.

The board of arbitration—two arbitrators named by the railroads, two by the employees, and two neutrals agreed upon by the parties—commenced hearings in Chicago on August 4, 1947. On September 2, 1947, that board (the railroad arbitrators dissenting) awarded an increase in rates of pay of 15½ cents per hour to the non-operating group of railroad employees—the increase to be made effective from September 1.

Meanwhile, on April 19, 1947, representatives of the operating group expressed their desire to resume negotiations on a large number of rules proposals covered by notices served nearly two years earlier. These same proposals were settled in 1946 by an additional increase in basic rates of 2½ cents an hour, in lieu of the pending proposals for changes in rules, with a moratorium of one year on the proposals. The railroads contended that the rules proposals had been withdrawn, whereupon, on June 20, 1947, the five operating labor organizations again served notices for 44 changes in working rules, together with certain supplementary proposals from yardmasters and dining car stewards. On the same day, the railroads submitted to the employees notices proposing 25 changes.

Operating Groups' Demands

Shortly after the arbitration board's award to non-operating railroad employees, the operating group served demands, on September 30, 1947, for a wage increase of 30 per cent, with a minimum money increase of $3.00 in basic daily rates. On October 7, 1947, representatives of the railroads and the operating group of employees met in Chicago to discuss the proposed rules changes, and on October 31, combined their discussions on rules and wages.

During earlier negotiations, on October 23, 1947, the employee representatives withdrew certain of their rules proposals, and on the following day the railroads withdrew certain of their proposals. These withdrawals were formally listed in a letter of understanding dated November 3, 1947, withdrawing 16 of the 44 employee proposals and 7 of the railroads' 25.

On November 14, 1947, two of the five operating organizations, the Order of Railway Conductors and the Brotherhood of Railroad Trainmen, signed an agreement with the railroads in settlement of the wage dispute and formally agreed to a basis of disposition of the rules proposals. The wage issue was settled by providing that, effective November 1, 1947, all basic daily rates of pay of employees represented by the conductors' and trainmen's organizations would be increased in the amount of $1.24—the equivalent of 15½ cents an hour—except that the monthly rates of dining car employees and yardmasters represented by these organizations would be increased by $37.20.

The Memorandum of Understanding in regard to the rules proposals provided, effective January 1, 1948:

First: That existing rules covering short turnaround passenger service shall be revised to provide for reducing the spread of the day from 8 within 10 hours to 8 within 9 hours, and that overtime shall be paid on the basis of one-eighth of the daily rate per hour.

Second: That a differential shall be granted yard conductors (foremen) of 85 cents, compared to the basic daily rate for yard trainmen (helpers). The previous standard differential was 52 cents.

Third: That time held away from home terminal, in excess of 16 hours, shall be paid for per hour at one-eighth of the daily rate for last service performed, and such time shall not be absorbed by subsequent service trips.

Fourth: That daily earnings minima shall be established for yard conductors (foremen), yard brakemen (helpers), and switchtenders, amounting to 20 cents in excess of standard basic daily rates.

Fifth: The parties agreed to withdraw all other rules proposals except four of the remaining general employee proposals, a few rules affecting yardmasters and dining car stewards, and seven of the carriers' proposals.

It was agreed that negotiations would continue on the proposals designated as item "fifth." On December 12 and 18, 1947, representatives of the railroads, Order of Railway Conductors, and Brotherhood of Railroad Trainmen, signed agreements in final disposition of those proposals. Except for providing for definite penalty overtime payments for extra yard men when performing more than one tour of duty, the agreement of December 12, 1947, remanded the other rules for negotiation on the individual railroads—the conference committees agreeing to certain principles to govern individual road action.

The other three operating organizations, Brotherhood of Locomotive Engineers, Brotherhood of Locomotive Firemen and Enginemen, and Switchmen's Union of North America, continued separate negotiations in regard to wages and their remaining 28 rules proposals. These negotiations were suspended on November 19, 1947, without agreement. The railroads invoked the services of the National Mediation Board, the board commencing mediation of the dispute in Chicago on November 24. At the end of 1947, mediation was still under way.

By the close of 1947, the railroads had signed agreements providing for a wage increase of 15½ cents an hour to 90 per cent of their employees, the other

10 per cent being represented by the engineers, firemen and switchmen.

The wage increase, calculated on the basis of 1946 employment, added $516,980,000 per year to railroad payrolls, and the increase in payroll taxes on account of the wage increases added $34,901,000 per annum, a total increase in labor cost of $551,881,000. If the three remaining operating organizations agree to the same 15½ cent wage pattern, payrolls will be further increased by $61,810,000 per annum, with an addition of $1,082,000 to payroll taxes.

Increased Material Prices

Prices paid by the railroads for fuel, material and supplies increased sharply during 1947, as shown in Table II.

Table II—Railway Material Price Indexes
(May, 1933 = 100)

	Material and supplies (other than fuel)	Fuel (coal and oil)	All material
December, 1939	130.7	134.3	131.9
December, 1941	146.4	148.4	147.0
December, 1943	159.5	180.5	166.2
December, 1945	170.0	195.9	178.2
June, 1946	182.8	217.3	193.8
December, 1946	199.2	228.5	208.5
June, 1947	216.6	245.2	225.7
December, 1947	227.9	291.3	248.1

So-called chargeout price levels in the railroad industry are commonly calculated for any given year by averaging the price indexes as of the previous December and the current June. This is because of the time lag between the dates supplies are purchased and the dates they are used and charged to operating expenses.

On this basis of calculation, the chargeout price level in 1946 was 186.0; this is the average of the index of 178.2 for December, 1945, and 193.8 for June, 1946. The corresponding chargeout index for 1947 was 217.1, an increase of 16.7 per cent over 1946.

The index during 1947 increased from 208.5 (December, 1946) to 248.1 on December 1, 1947, an increase of 19.0 per cent. This increase, taking place during the year 1947 alone, was the composite of increases of 27.5 per cent in the fuel price index and 14.4 per cent in the price index of other material and supplies. Applied to 1946 purchases, which amounted to $1,570 million (see Table XI), this increase of 19.0 per cent represented an additional annual cost for railroad supplies amounting to nearly $300 million.

Rates and Fares

Sharp and continuing increases in wage rates, in unit prices of fuel, material and supplies, and in payroll tax rates, during the war and since, have added more than $3 billion to annual railroad operating costs. To meet this staggering cost increase of approximately 70 per cent, the railroads have found it imperative to propose increases in freight rates, passenger fares, and mail pay, and to support the efforts of the Railway Express Agency to obtain increases in express rates. Such increases have been made effective, to the extent authorized by the Interstate Commerce Commission and the several state commissions.

Freight rates. The Interstate Commerce Commission early in 1942 authorized temporary increases in freight rates averaging 4.7 per cent, effective March 18, 1942. These increases were suspended as of May 15, 1943, and rates remained at or below prewar levels until the effective date (July 1, 1946) of the commission's interim decision in Ex Parte 162. In that decision, the commission restored the Ex Parte 148 increases, with some upward adjustments in Eastern territory. The increase averaged about 6 per cent for the country as a whole. The final decision in Ex Parte 162, handed down early in December, 1946, cancelled the interim adjustment and substituted increases which the commission's staff estimated as averaging 17.6 per cent. These became effective January 1, 1947. With the exception of one state, and with some modifications in other states, corresponding increases have been authorized on intrastate freight traffic in the several states.

However, costs continued to rise and on July 3, 1947, the railroads petitioned the commission for further increases in freight rates. That petition was docketed as Ex Parte 166 and sought general increases of 25 per cent in rates on traffic within and to and from the East and 15 per cent on traffic within and between the South and the West, with specific or maximum increases on certain commodities. The proposed increase averaged about 17 per cent. Hearings on the petition opened on September 9 in Washington. Before that date, an arbitration board awarded an increase of 15½ cents per hour to nonoperating railroad employees, effective September 1, 1947. To cover this new cost, amounting to about $465 million per year (including payroll taxes), as well as substantial increases in costs resulting from higher coal and steel prices which followed wage adjustments in the coal fields in July, the railroads filed an amended petition on September 5. This raised the general increases sought to 38 per cent in the East and 28 per cent in the South and West, with somewhat similar relative increases in the specific and maximum increases. These amended increases averaged about 27 per cent.

In addition, the railroads asked in September for immediate interim relief to cover the new wage costs —a general 10 per cent increase in freight rates, with a maximum of 5 cents per ton on coal, coke and iron ore. The commission authorized these interim rates in a decision dated October 6, and they became effective October 13, 1947, averaging 8.9 per cent.

Further hearings were held on the main proposal in November, in Chicago and a number of other cities throughout the country. Meanwhile, the railroads signed an agreement with the conductors and trainmen, granting an increase of 15½ cents per hour, effective November 1, 1947. Consequently, a further amendment to the freight rate petition was filed on December 3, 1947, raising the general increases sought to 41 per cent on traffic within and to and from the East and to 31 per cent on traffic within and between the South and the West, with corresponding increases in the specific and maximum increases on certain commodities. The average increase on the basis of this final proposal was 29.2 per cent for the country as a whole. Final hearings began in Washington on December 8 and were concluded on December 20. The carriers look for an early decision by the commission in the matter.

Other general freight rate changes during the year included upward adjustments in transcontinental rates (I. C. C. Docket 29663), and the changes in class rates prescribed by the commission in Docket 28300 and upheld by the Supreme Court in its decision of July 7, 1947. The increases in transcontinental rates will produce additional revenues of about $5,000,000 annually. The class rate adjustments, which became effective on October 13, 1947, represented an increase of 10 per cent in Eastern territory and a decrease of 10 per cent in Southern and Western territory. The effect of these new class rates will be to increase freight revenues in Eastern territory, including the Pocahontas region, by about $12,500,000 annually, while decreasing freight revenue in Southern and Western territories by about $6,500,000 annually.

Passenger-Train Rates

Passenger fares. A general passenger-fare increase of 10 per cent, with certain exceptions, was authorized by the commission in Ex Parte 148, effective in February, 1942. These charges have remained in force. Petitions for further increases were filed by the railroads in 1947, first by the New Haven, followed by other Eastern railroads, Southern railroads, Western railroads, and again late in the year by the New Haven.

These petitions were acted upon promptly by the commission, with the result that fares in sleeping and parlor cars throughout the country were raised from 3.3 to 3.5 cents per mile; fares in coaches on Eastern lines and most Southern lines were increased from 2.2 to 2.5 cents per mile; coach fares on the New Haven were later increased to 2.875 cents per mile; interstate commutation rates in the East were increased about 20 per cent; special and round-trip fares were generally raised.

Mail pay. Early in 1947, the railroads filed a petition with the commission seeking an increase of 45 per cent in mail pay rates, which had not been changed for nearly 20 years. Hearings were held in July and September-October, when the railroads submitted exhibits and testimony in support of their proposal. However, the Post Office Department was not prepared to submit its case, and the railroads petitioned for interim relief of 35 per cent until the matter could be finally determined. The commission on December 23 granted interim increases of 25 per cent, retroactive to February 19, 1947, the date of the petition.

Express rates. The Railway Express Agency was authorized by the commission in 1942 to increase its charges on l. c. l. shipments by 10 cents per shipment, as an emergency measure. This remained in effect until the commission's decision in Ex Parte No. 163, which authorized general express rate increases averaging about 19 per cent, effective December 13, 1946. As a result of further hearings in Ex Parte No. 163, l. c. l. express rates were further increased to a level about 41 per cent above prewar rates, effective October 25, 1947. One month later, on November 25, the Express Agency sought a further increase of about 10 per cent to cover the cost of wage increases recently granted to its employees. In an order handed down on December 16, the commission authorized the filing of tariffs on first and second class express rates as proposed, subject to protest and possible suspension.

All railroad statistics in this review relate to railways of Class I only. For the most part, the statistics are derived from reports of the Interstate Commerce Commission. Carloading statistics and certain other data, however, are based upon records of the Association of American Railroads. The entries for 1947 are based in part on estimates.

Table III shows comparative statistics of freight and passenger traffic for each year from 1939 to 1947, and for selected earlier years. In any comparison of 1947 with 1946, the low level of industrial production in the first half of 1946 should be kept in mind. In those six months, the country experienced a number of serious curtailments in output, due to labor difficulties in the coal, steel, automobile, meat packing, electrical and other important industries. These curtailments seriously affected railroad traffic, to say nothing of the brief but disruptive strike of railroad enginemen and trainmen in May, 1946.

Table III—Comparative Traffic Summary

Revenue Carloadings (thousands)			
1947	44,537	1942	42,771
1946	41,341	1941	42,352
1945	41,918	1940	36,358
1944	43,408	1939	33,911
1943	42,440	1929	52,828
Revenue Ton-Miles (millions)			
1947	647,359	1943	637,984
1946	591,982	1941	475,072
1945	681,001	1940	373,353
1944	737,246	1939	333,438
1943	727,075	1929	447,322
Revenue Passenger-miles (millions)			
1947	44,790	1942	53,659
1946	64,673	1941	29,350
1945	91,717	1940	23,762
1944	95,549	1939	22,651
1943	87,820	1920	46,849

Revenue Carloadings. Loadings of revenue freight in 1947 are estimated at 44,537,000 cars, an increase of more than three million cars over 1946, or 7.7 per cent. This total surpassed loadings in any of the war years and was greater than in any year since 1930.

Loadings for each of the eight general commodity groups in 1947 are shown in Table IV, together with the increase or decrease (D), compared with 1946.

Table IV—Carloadings by Commodity Groups

	1947 (000)	Increase over 1946 (000)	Increase over 1946 Per cent
Ore	2,648	652	32.7
Coke	733	146	24.9
Coal	9,095	1,091	13.6
Grain	2,732	235	9.4
Miscellaneous	20,058	1,315	7.0
Forest products	2,416	153	6.8
Merchandise, l.c.l.	6,080	D 245	D 3.9
Live stock	775	D 151	D 16.3
Total	44,537	3,196	7.7

Six of the eight commodity groups increased in 1947. Ore loadings showed the greatest increase percentagewise, followed closely by coke. Coal loadings were heavy, that industry being relatively free from the labor troubles that greatly curtailed mining operations in 1946. The greatest increases in 1947, in terms of number of cars loaded, were shown by miscellaneous (or manufactured) products (increase of 1,315,000) and by coal (increase of 1,091,000). Grain loadings continued heavy, as did also the loadings of

forest products and miscellaneous products. Only l. c. l. and live stock loadings showed decreases.

Revenue Ton-miles. With increased industrial employment and production, revenue ton-miles attained a new peacetime record in 1947. The increase of 9.4 per cent over 1946 was relatively greater than that of 7.7 per cent attained by carloadings. The aggregate for 1947 was 647,359,000,000 ton-miles. Although 12.2 per cent below the wartime peak year, 1944, the 1947 total was 44.7 per cent greater than in 1929, the peak prior to the second world war, and 94.1 per cent above 1939.

The trend in ton-miles since the end of the war is shown in Table V, which gives figures by quarterly periods beginning with 1945. Ton-miles in 1947 were at their lowest point during the first quarter, but nonetheless were 8.4 per cent higher than in the corresponding quarter of 1946. The contrast between the second quarter of 1946 and that of 1947 is very marked, due to the low level of industrial production (especially coal) in that period of 1946. The ton-mile aggregate for the same quarter of 1947 was greater by 26.5 per cent, although the year's increase was only 9.4 per cent.

Table V—Revenue Ton-miles, by Quarters (billions)

	1945	1946	1947
First quarter	176.6	145.7	157.9
Second quarter	188.1	126.6	160.2
Third quarter	170.1	160.7	165.1
Fourth quarter	145.8	158.9	164.1

Passenger-miles. The decline in passenger traffic which started early in 1946 continued throughout 1947. Passenger-miles for the year 1947 are estimated at 44.8 billion, a decline of 30.7 per cent below 1946 and 53.1 per cent below 1944, the year in which war traffic reached its peak. The 1947 volume was, however, the greatest for any peacetime year save only 1920, and was almost twice the volume handled in 1939.

The downward trend in passenger-miles following the peak of the return movement of troops from the war zones has been sharp and continuous, as shown in Table VI.

Table VI—Revenue Passenger-miles, by Quarters (billions)

	1945	1946	1947
First quarter	21.1	19.5	11.1
Second quarter	22.2	15.6	11.3
Third quarter	23.9	16.4	12.7
Fourth quarter	24.5	13.3	9.6

By quarters, passenger-miles in 1947 showed the usual seasonal rise from the first to the third quarter, then a sharp drop in the final quarter. Every quarter was under that of 1946, the percentages of decrease ranging from 27.6 to 43.1 per cent, and averaging 30.7 per cent for the year.

Legislation

The 80th Congress, first session, convened on January 3, and adjourned July 27, 1947, leaving considerable railroad legislation pending. A special session, November 17 to December 19, devoted attention primarily to problems of rising prices and emergency European aid. Since the same Congress meets in January, however, pending legislation retains its present status.

From a railroad standpoint, the year was marked by the failure of Congress to act on several measures of importance to the carriers. Legislation directly affecting the railroads was limited to the passage of three bills. *H.R. 3861,* introduced by Representative Jenkins, "to allow to a successor railroad corporation the benefits of certain carry-overs of a predecessor for the purposes of certain provisions of the Internal Revenue Code," became Public Law 189 on July 15. *H. J. Res. 201,* introduced by Representative Knutson, extended from December 31, 1946, to December 31, 1949, sections 22 (b) (9) and 22 (b) (10) of the Internal Revenue Code, which exclude from taxable net income so-called gains resulting from the discharge of indebtedness or from recapitalization incident to receivership of bankruptcy proceedings. This measure became Public Law 112 on June 25. *H. R. 2123,* introduced by Representative Wolverton, amended the salary provisions of the Locomotive Inspection Act, giving the Interstate Commerce Commission authority, subject to civil service laws, to fix compensation of the director and assistant directors of the Bureau of Locomotive Inspection. This bill became Public Law 79 on May 27.

The Taft-Hartley Labor-Management Relations Act, which became Public Law 101 on June 23, indirectly affects the railroads, in that it applies to certain activities of railroad labor organizations, although employers, employees, and labor relations matters subject to the Railway Labor Act are generally exempt.

The following measures introduced but not finally acted upon in the 1947 session are of direct or collateral interest to the railroads.

H.R. 22 and S. 110. To stay the operation of anti-trust laws with respect to rate-making procedures and other joint actions approved by the Interstate Commerce Commission. Hearings were held from June 25 to June 30 on H.R. 221, the Bulwinkle Bill, which was reported with amendments on July 25. S. 110, introduced by Senator Reed (Kansas) passed the Senate by a 60-27 vote on June 18.

H.R. 221 and S. 110. To stay the operation of anti-unemployment Insurance Act by striking from it the sickness and maternity benefits added by the Crosser Act, and to put unemployment compensation taxes (which are levied solely on the railroads) on a sliding-scale basis, ranging from the present rate of 3 per cent down to ½ per cent. This legislation, the Howell-Hawkes bill, was reported favorably by the committee on interstate and foreign commerce, but was not acted upon. S. 670 was referred to a subcommittee of the Senate committee on labor and public welfare, which with some amendments reported the bill favorably to the full committee. On July 17, the committee voted to postpone action on the bill until the 1948 session.

H.R. 3980, introduced by Representative Reed (Illinois) on June 25, is designed "to enable debtor railroad corporations expeditiously to effectuate reorganizations of their financial structures; to alter or modify their financial securities." It would apply to railroads now undergoing reorganization, as well as to companies entering bankruptcy in the future. A similar Senate bill (S. 249) was introduced by Senator White (Maine). Both bills were favorably reported, but failed to reach the floor of either house for a vote.

The Mahaffie Bill (*H.R. 2298*), introduced by Representative Wolverton, which applies only to railroads

not yet in the hands of the courts, proposes to reestablish in modified form the voluntary financial readjustment procedures of the McLaughlin Act, which expired November 1, 1945. The Senate has not yet taken action on the House-approved bill.

H.R. 1639. To remove from the Employers' Liability Act the special venue provisions permitting actions brought thereunder to be instituted in any place where the defendant is doing business. The bill, introduced by Representative Jennings, passed the House on July 17, and was then referred to the Senate judiciary committee.

Amendment to Section 20a of Interstate Commerce Act. Introduced by Representative Wolverton, this bill (*H.R. 2331*) would make less restrictive the prohibition against carrier officers profiting from the issuance of securities by their companies. It also extended to sleeping-car companies the commission's jurisdiction over security issues and interlocking directorships. The measure passed the House on May 12, and the Senate on July 17, but was vetoed by the President on July 30.

St. Lawrence Waterway and Power Project. On May 9, 1947, Senator Vandenberg of Michigan, on behalf of a bi-partisan group of 16 Senators, introduced S. J. Res. 111, which would approve the agreement entered into in 1941 by the United States and Canada relating to improvement of the St. Lawrence for navigation, and establishment of hydroelectric power plants. The resolution differs from S. J. Res. 104, introduced in the preceding Congress, principally in that it sets up the principle of self-liquidation of the navigation works through imposition of reasonable tolls. After hearings before a subcommittee of the Senate foreign relations committee, that committee by a vote of 9 to 4 agreed to report the resolution favorably to the Senate. Two identical resolutions were introduced in the House by Representatives Dondero of Michigan (*H.J.Res.192*) and Blatnik of Minnesota (*H.J.Res.194*). Hearings on these were begun prior to adjournment in July, to be renewed when Congress reconvenes in 1948.

On May 12, the House passed H.Res. 153, which authorized its Committee on interstate and foreign commerce to continue the national transportation inquiry, inaugurated by the then Chairman Lea in 1945.

Other unfinished measures include amendment of the Fair Labor Standards Act by increasing the present minimum wage, various bills designed to deal with car supply and distribution, and proposals to establish a Department of Transportation.

Congressional Investigations. Congressional investigations into the matter of freight car supply and distribution took place in response to Senate Resolutions 44 and 47, the former being directed to the car supply situation in the coal mining districts of West Virginia and the latter having to do with the car supply in the country generally, with particular reference to box cars. Protracted hearings were held before a subcommittee of the Senate committee on interstate and foreign commerce. Following the hearings, the subcommittee recommended no new legislation but sought to facilitate the acquisition of new cars by means of executive sessions with representatives of the steel industry, car builders, and the railroads.

Developments in the anti-trust suit brought by the Department of Justice against the Association of American Railroads, the Western Association of Railway Executives, and many individuals included preliminary statements on April 23, 1947, by attorneys for the government and for the defendants, outlining respectively the general theory of the government's case and the character of the defense upon which defendants rely. The government offered in evidence copies of 809 exhibits, taken for the most part from files of the railroads and the associations. The court granted defendants until October 1 to file objections to the exhibits, and the government was granted not more than 45 days in which to reply. Objections were presented on October 1, the government reply was filed on November 15, and the defendants' reply was set for December 31.

Court and Administrative Proceedings

In the Georgia Anti-Trust Case (*State of Georgia vs. Pennsylvania Railroad Co., et al.*) eleven volumes of briefs were filed, and in May, 1947, oral argument was heard by the master in the case. An application by the State of Alabama to the Supreme Court to intervene in the case on the side of Georgia was denied. Following the master's report to the Supreme Court, final argument will be presented before that body.

The Interstate Commerce Commission issued a report and order (I.C.C. Docket No. 29670) dated July 26, 1947, prescribing a freight car per diem charge of $2.00, to be effective for 6 months following October 1, 1947. Hearings were held by a three-judge federal court during September and October on the application of 43 trunk-line and 139 shortline railroads for a permanent injunction to restrain the commission from placing the order in effect. An interlocutory injunction, suspending the order retroactively as of October 1, was issued by the court on November 7. In its opinion dated November 20, 1947, the district court set aside the commission's order. The court held that in establishing what was in effect a penalty per diem rate of $2.00, the commission exceeded its statutory powers and further that, even if the commission had the requisite power, the findings in its report were insufficient to support the order.

During the year, the Interstate Commerce Commission continued proceedings (I.C.C. Docket No. 29669) instituted by its order of December 18, 1946, the purpose of which was to investigate the shortage in the supply of freight cars. The investigation embraced the entire field of car service, including the question of whether the commission should formulate and promulgate car service rules. Certain matters relating to car acquisition were held in abeyance by the commission, but on August 6, 1947, the commission released a report and order in which it found the carriers' car service rules to be lawful and declined itself to promulgate such rules.

The commission did, however, issue an order on October 10, 1947, its Service Order No. 778, which prescribed certain regulations for prompt movement of freight cars. Referred to generally as the "48-Hour Order," it provided that cars should be loaded, unloaded, or moved out of terminals within 48 hours; if not so handled, the facts of and reasons for such delays were to be recorded. Order 778 was to become

effective on November 1, 1947, but the date was later successively postponed to November 20, December 20 and January 15, 1948.

Purchase of the Pullman Company by a group of 57 railroads was consummated on June 30, 1947. The transaction climaxed seven years of litigation, which ended in a decree by the federal district court at Philadelphia, entered May 8, 1944, ordering Pullman, Inc., a holding company, to separate its sleeping car business from its car manufacturing interests.

A number of interests sought to purchase the Pullman Company but the court, in January, 1946, approved the offer of the railroad group. The Supreme Court affirmed the sale in March, 1947. The purchasing railroads paid $40,202,482 for the entire 731,350 shares of the capital stock of the Pullman Company. Eighteen months earlier, individual railroads had bought from Pullman its parlor and sleeping cars for approximately $35,995,000 in cash, making a total cost for capital stock and equipment of approximately $76,000,000.

Pullman Company operations are conducted in accordance with the provisions of a standard contract which the company has entered into with individual railroads. Under the terms of this contract the Pullman Company undertakes to (1) service sleeping and parlor cars and (2) administer a pooling plan whereby revenues from the sale of accommodations are distributed among the owning lines after deduction of operating costs and other items.

In conformance with an agreement approved by the Interstate Commerce Commission and the courts, Pullman will furnish service to all roads, on a nondiscriminating basis regardless of whether a carrier participated in the purchase of the company.

Office of Defense Transportation

The life of the Office of Defense Transportation, scheduled to expire on April 30, 1947, was twice extended during the year. H. R. 1968 appropriated funds permitting continued operations through June 30, 1947, and H. R. 4269 appropriated $400,000 without specifying a date on which the affairs of the office should be liquidated. Col. J. Monroe Johnson continued as director of O. D. T., concentrating on matters pertaining to car supply, car distribution and car service.

Retirement and Other Benefits

Railroad Retirement. The year 1947 marked a peak in payment of benefits under the Railroad Retirement Act. This was due in large part to the so-called Crosser Act of 1946, virtually all the provisions of which relating to railroad retirement became effective January 1, 1947. Surviving widows, dependent children and parents who met certain qualifications were awarded monthly payments for the first time; many former employees not previously eligible for disability annuities became eligible for benefits, and thousands of annuitants already on the retirement rolls were awarded increased monthly benefits under new minimum annuity provisions.

As of October 31, 1947, beneficiaries on the rolls of the Railroad Retirement Board numbered 267,556, compared with 188,774 on the same date in 1946. This increase of 78,782 was accounted for by the award of 56,040 survivor annuities (widows, children and parents), a net increase of 24,092 in the number of retirement annuitants, and a decrease of 2,160 pensioners (persons transferred from the voluntary rolls of the carriers in 1937), by reason of death.

Comparison of this striking increase in beneficiaries with that of the corresponding period 1945-1946 is shown in the following tabulation.

As of October 31	1947 over 1946	1946 over 1945
Increase in annuitants	24,902	16,226
Decrease in pensioners	2,160	2,382
Survivor annuities	56,040	....
Net increase	78,782	13,844

The monetary effect of this expansion in number of beneficiaries, as well as increases in existing benefit rates, is reflected in the sharp rise in disbursements. Benefit payments in October, 1947, aggregated $18,885,910, compared with $13,592,344 in October, 1946. Thus the annual level of disbursements rose from $163,108,000 in October, 1946, to $226,631,000 in October, 1947, an increase of $63,523,000, or 38.9 per cent. The corresponding increase between October, 1945, and October, 1946, was $13,879,000, or 9.3 per cent.

Railway employment in 1947 remained at approximately the same level as in 1946, but payroll tax accruals for railway retirement rose sharply. For the first ten months of 1947 they amounted to $191,678,000, compared with $114,174,000 for the corresponding period of 1946, an increase of $77,504,000, or 67.9 per cent. This increase was due in large part to the increase in the payroll tax rate for retirement purposes, which was raised from 3½ per cent each, on employers and employees, to 5¾ per cent each on January 1, 1947, and in lesser degree to the increased wage rates effective during the latter part of the period.

Railroad retirement taxes are paid to the Bureau of Internal Revenue, which deposits them in the general fund of the Treasury. Each year Congress appropriates to the Railroad Retirement Board the amount of taxes that is expected to be collected. Differences are adjusted in the followinf year's appropriation. In addition to taxes, Congress appropriates an amount equal to its obligations on account of creditable military service performed by railroad employees. The amount to be devoted to administrative expenses is specified by Congress.

The following tabulation summarizes the financial operations of the railroad retirement system from its inauguration in 1937 to October 31, 1947.

Receipts:		
From appropriations	$2,584,136,000	
Interest on investments	86,868,815	
Total		$2,671,004,815
Benefit payments		1,364,144,131
Balance		$1,306,860,684

Administrative expenses for the entire period of operation to October 31, 1947, amounted to $33,023,114.

The Railroad Retirement Act directs the Railroad Retirement Board to have an actuarial appraisal made of the potential assets and liabilities of the railroad retirement system, at least once every three

years. The result of the third such appraisal, or valuation, as of December 31, 1944, was made available early in 1947. These valuations are carried out by a committee of actuaries not members of the board's staff.

The committee concluded that a total tax rate on employers and employees of 9.13 per cent on an average annual payroll of $3½ billion would be required to provide sufficient funds to pay all future benefits under the provisions of the 1947 act, before it was amended by the Crosser Act in 1946. The cost of the new provisions had previously been estimated at 3.50 per cent of the average annual payroll. Thus a total of 12.63 per cent of the payroll (6.315 per cent each on employers and employees) is estimated as required to pay all potential benefits. The payroll tax rates under the act as amended (graduated from 11½ per cent, the present rate, up to 12½ per cent from 1952) are equivalent to a flat rate of 12.39 per cent. The estimated deficiency was therefore 0.24 per cent.

Railroad Unemployment Compensation. Payments of unemployment compensation benefits in 1947 somewhat exceeded the prior peak levels attained in 1946. Benefit disbursements during the first 10 months of 1947 aggregated $34,355,342, compared with $31,627,091 during the same period of 1946. Peak levels were reached during the first five months of 1947, when disbursements averaged $4,572,860 per month, whereas during the next five months they averaged about half that amount, or $2,298,209 per month.

Sickness and Maternity. The Crosser Act amendments to the Railroad Unemployment Insurance Act providing sickness and maternity benefits did not become effective until July 1, 1947.

Under these provisions, benefits are payable for sickness, occupational or otherwise, in the same amount and for the same duration as benefits for occupational unemployment. Equivalent maternity benefits are payable to women railroad employees for periods preceding and succeeding childbirth.

The number of benefit payments and amount of such payments for sickness, injury, and maternity rose progressively during the first four months of operation ended October 31, 1947. A total of 167,005 benefit payments involving $6,289,637 were made on account of illness and injury during that four-month period. Maternity benefit payments numbered 5,692, with disbursements aggregating $317,450. These statistics, covering the first few months of a new type of benefits, do not provide an adequate basis for final judgment as to the eventual cost of such benefits.

Recipients of sickness benefits are manifestly employees with greater earnings than employees receiving unemployment benefits. This is evidenced by the fact that during the four months ended October 31, 1947, the average daily benefit rate for sickness was $4.43, whereas during the same period the average daily unemployment benefit was $3.37.

The entire railroad unemployment insurance system —unemployment, sickness and maternity—is financed by taxes levied upon the railroads. Employees make no contribution. The tax rate is 3 per cent upon compensation up to $300 per month per employee.

Unemployment tax accruals for the first 10 months of 1947 amounted to $100,006,000, compared with $97,864,000 for the corresponding period of 1946, an increase of 2.2 per cent. Since total benefit disbursements including the new benefits for sickness and maternity during this period amounted to $40,962,429, the balance to the credit of the unemployment reserve continued to grow. As of October 31, 1947, the balance to the credit of the reserve amounted to $886,865,184.

Financial results of operation of the unemployment compensation system, for the entire period of operation from July 1, 1939, to October 31, 1947, are shown in the following summary.

		July 1, 1939 to Oct. 31, 1947
Receipts:		
Tax payments	$777,489,305	
Transfers from administrative fund	66,513,935	
Transfers from State accounts	107,226,932	
Interest on investments	67,304,100	
Miscellaneous	50	$1,018,534,322
Expenditures:		
Benefit payments	$127,199,217	
Reimbursements to States	25,148	
State tax refunds	4,444,773	131,669,138
Balance on reserve		$ 886,865,184

The amount of tax payments shown in the summary represents 90 per cent of the total tax collections, the remaining 10 per cent being allocated to the administration fund. The total amount expended for administration for the entire period of operaion from July 1, 1939, to October 31, 1947, was $30,595,408.

Employment Service. Placements made by the Railroad Retirement Board's employment service decreased in 1947. Total placements made during the first 10 months of 1947 aggregated 46,917, compared with 101,819 for the same period of 1946.

Results of Operations

Despite an upward turn in freight traffic, which together with increased freight rates led to a considerable advance in gross earnings, net earnings in 1947 showed only a moderate increase over 1946. The continued decline of passenger traffic, together with rapidly rising unit costs of operation, were largely responsible for this disappointing showing.

The four tables that follow show significant income account items for the years 1947, 1946, 1945, and 1944. The entries for 1947 are estimates submitted to the commission in the course of the December hearings in Ex Parte No. 166, with adjustments for the wage increase to conductors and trainmen on November 1. Those estimates, in turn, were based upon prospective traffic and earnings returns from 33 leading railroad companies, raised to a Class I basis.

Table VII is a condensed income account for the four years indicated.

Table VII—Condensed Income Account

	1947 (millions)	1946 (millions)	1945 (millions)	1944 (millions)
Total operating revenues	$8,582	$7,628	$8,902	$9,437
Total operating expenses	6,755	6,357	7,052	6,282
Operating ratio (per cent)	78.71	83.35	79.21	66.57
Taxes	907	498	824	1,846
Net railway operating income	748	620	852	1,106
Rate of return (per cent))	3.32	2.75	3.77	4.71
Net income, after charges	450	287	450	667

Although freight and passenger traffic, and the resulting operating revenues, reached all-time peaks in 1944, the net railway operating income in that year fell considerably below the corresponding net earnings for 1942 and 1943, and was also below those of 1925, 1926, 1928, and 1929. Net earnings of $1,485 million in 1942 set the all-time record.

Compared with 1944, net railway operating income decreased in 1945 and again in 1946, but showed an increase of $128 million in 1947. This moderate improvement, of course, resulted from the freight rate increase that became effective on January 1.

Operating revenues in 1947 increased by $954 million, or 12.5 per cent, over 1946. Operating expenses increased by $398 million. The operating ratio in 1947 was 78.71 per cent, lower than in 1945 or 1946, but higher than in any previous year back to 1920.

Tax accruals for the year 1947 were $907 million, an increase of $409 million, or 82.1 per cent, over 1946. Had the railroads in 1946 not taken advantage of some $170 million of carry-back tax credits, the tax accruals for 1947 would still have exceeded those of 1946 by 35.8 per cent. Payroll taxes showed an increase of $99 million in 1947, and Federal income taxes increased $286 million.

Net railway operating income for 1947 was $748 million, an increase of 20.6 per cent over 1946, but producing a return on net investment of only 3.32 per cent.

Net income after charges for the year 1947 was $450 million. This may be compared with a net income of $902 million in 1942, when gross earnings were on a much lower level, with $667 million in 1944, and with $287 million in 1946.

Table VIII shows the five principal operating revenue accounts for the four years 1944 to 1947, inclusive.

Table VIII—Operating Revenues

	1947 (millions)	1946 (millions)	1945 (millions)	1944 (millions)
Freight	$6,992	$5,787	$6,534	$6,999
Passenger	945	1,259	1,716	1,790
Mail	139	129	130	130
Express	114	93	144	144
All other	392	360	378	374
Total	$8,582	$7,628	$8,902	$9,437

Freight revenue increased by $1,205 million in 1947, compared with 1946, or 20.8 per cent. This increase was due to both increased rates and a substantial increase in freight traffic volume.

Passenger revenue in 1947 declined by $314 million, 24.9 per cent below that of 1946. The downward trend was experienced more or less evenly throughout the year.

Mail revenue increased by $10 million and express revenue by $21 million. The express revenue of the railroads, which is what they are paid by the Railway Express Agency as its net earnings from a gross of approximately $430 million, showed some improvement as the result of the increased express rates authorized by the commission as of December 13, 1946, and again on October 25, 1947.

Table IX shows the five principal operating expense items for the year 1947 and earlier years.

Total operating expenses amounted to $6,755 million in 1947. This was an increase over 1946 of $398 million, or 6.3 per cent, and was the greatest amount charged to expenses in any previous year, with the sole exception of 1945, when some $825 million was charged to operating expenses as the final step in the wartime amortization of defense projects. Had the increased wage rates and prices in effect at the end of 1947 been effective throughout the year, as they undoubtedly will be in 1948, operating expenses for 1947 would have exceeded all previous records.

Table IX—Operating Expenses

	1947 (millions)	1946 (millions)	1945 (millions)	1944 (millions)
Maintenance of way and structures	$1,219	$1,150	$1,411	$1,263
Maintenance of equipment	1,564	1,469	2,148	1,587
Traffic	175	165	144	137
Transportation	3,425	3,212	3,016	2,974
General and other	372	361	333	321
Total	$6,755	$6,357	$7,052	$6,282

Maintenance of way and structures expenses increased 6.0 per cent in 1947, and maintenance of equipment expenditures increased 6.5 per cent.

Transportation expense, the largest of the principal expense accounts, and the one that reflects the direct cost of handling and moving traffic, increased by $213 million in 1947, or 6.6 per cent. The total for 1947, $3,425 million, represents the largest amount ever charged to that important expense account.

Table X, the final table in the income series, shows the rate of return earned on net property investment. The rate is shown for 1929, and for each year from 1937 to 1947.

Table X—Rate of Return on Property Investment

Year	Net railway operating income (millions)	Rate of return—per cent: On investment after depreciation
1947	$ 748	*3.32
1946	620	2.75
1945	852	3.77
1944	1,106	4.71
1943	1,360	5.71
1942	1,485	6.30
1941	998	4.28
1940	682	2.93
1939	589	2.55
1938	373	1.61
1937	590	2.54
1929	1,252	5.24

* Based on investment at beginning of 1947.

Net railway operating income in 1947 totaled $748 million, about one-half of the amount earned in 1942, the year of peak net earnings during the war.

Based on property investment after deducting accrued depreciation and amortization, the rate of return in 1947 was 3.32 per cent. This was less than that of any years since 1940, excepting only the 2.75 per cent earned in 1946. It compares unfavorably also with the following annual averages for previous five-year periods of heavy traffic, as follows: 1941-1945, 4.97 per cent; 1926-1930, 4.76 per cent; 1921-1925, 4.20 per cent.

Receiverships and Trusteeships

At the end of 1947, 52 railroad companies operating 23,250 miles of road were in the hands of receivers and trustees. This was 13 less than at the end of 1946, when 35,933 miles were similarly situated. Of the total number in the hands of the courts in December, 1947, two Class I and four smaller roads were in the hands of receivers, while 15 Class I and 31 smaller

(*Continued on page 240*)

RAILROADS BUY OVER $2½ BILLION IN YEAR

Manufactured products purchased reached almost $2 billion, with orders for new equipment totaling nearly $700 million

By J. W. MILLIKEN
Associate Editor, Purchases and Stores Department

1947 Railway Purchases

Large orders for new equipment featured Class I railroad buying during October, November and December. (Figures in thousands, subject to revision.)

	**Oct., '47	Nov., '47	Dec., '47	Cumulative total, 1947
Equipment*	$ 70,895	$ 81,509	$ 79,067	$ 691,175
Rail	11,024	13,130	13,204	102,508
Crossties	6,598	6,855	5,013	89,763
All other material	95,241	87,068	90,028	1,083,428
Total from manufacturers	$183,758	$188,562	$187,312	$1,966,874
Fuel	63,801	64,311	64,886	675,835
Grand total	$247,559	$252,873	$252,198	$2,642,709

* Amount placed on order
** Subject to revision

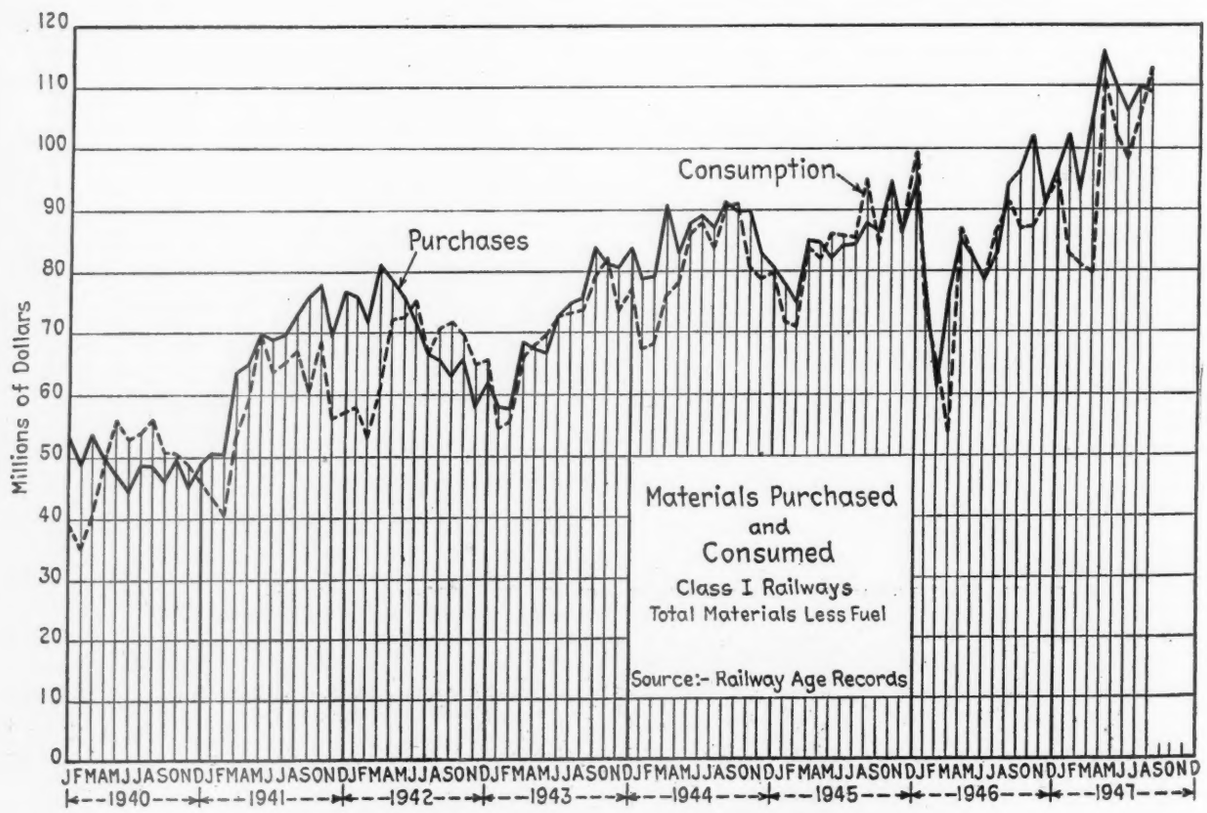
Preliminary estimates by *Railway Age* place the total volume of railway buying for last year at $2,642,709,000, a sum greater than that spent by the railroads in any year since records have been kept. Orders for new equipment during the last three months were one of the main factors in bringing the total to this new high, although the other items also rose appreciably during this period. Fuel and rail led this upward parade, while crosstie buying dipped considerably.

Inventories as of the first of October, the last date

Annual Purchases of Equipment, Class I Railroads

Year§		Year§	
1930	$146,471	1939	$188,838
1931	28,873	1940	264,943
1932	2,623	1941	414,690
1933	5,857	1942	325,000†
1934	66,850	1943	248,000†
1935	35,696	1944	255,000
1936	240,594	1945	320,100
1937	194,153	1946	629,510
1938	74,006	1947	691,175*

* Preliminary Estimates.
§ Estimated value of orders for new locomotives and cars.
† Estimated value of orders for new locomotives and cars built by equipment builders and placed in service during 1942 and 1943.


120
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Millions of Dollars
Consumption
Purchases
Materials Purchased
and
Consumed
Class I Railways
Total Materials Less Fuel
Source:- Railway Age Records
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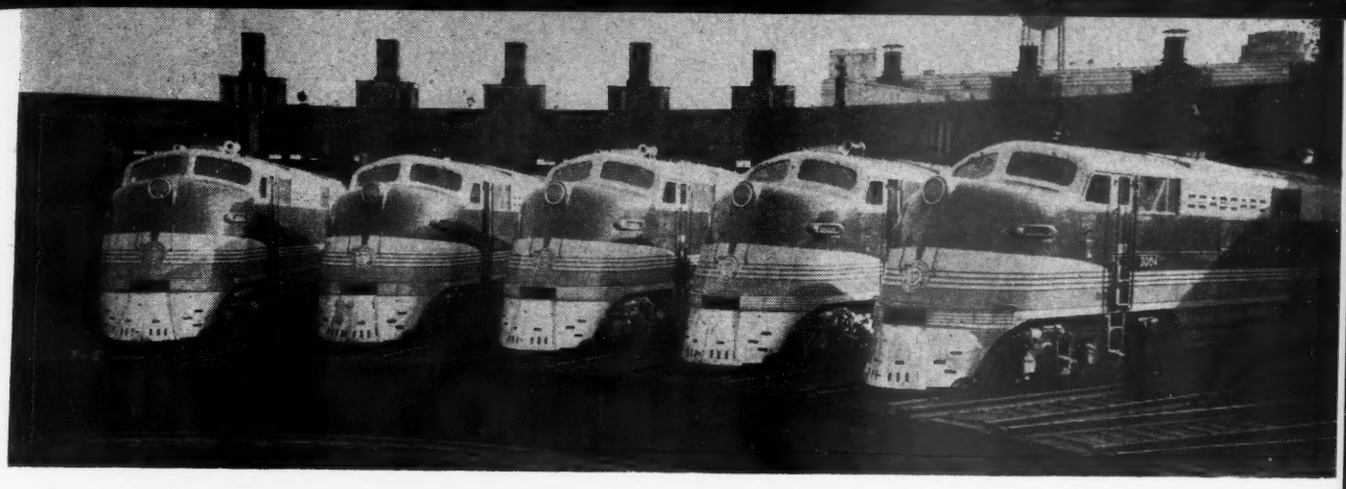
1940
1941
1942
1943
1944
1945
1946
1947

During the past year heavy consumption of manufactured articles (exclusive of fuel) has kept pace with purchases, actually exceeding them in August



Heavy purchases of Diesel-electric locomotives brought equipment outlays to a new high

for which figures are available, were down for the first time in many months. However the dip was nothing about which to get alarmed.

It is interesting to note that most of the purchasing agents answering a *Railway Age* questionaire stated that this volume of inventories was due in the main to unbalanced inventories and high prices. Only a few said that inventories on their road represented an actual rise in the physical volume of articles on hand. Thus, although this was the big year as far

1947 Purchases of Manufactured Goods (Excl. Equipment and Fuel)*

Month	Amt.	% Change	Month	Amt.	% Change	Year	Amt.	% Change
	December '47 Compared to Other Months '47 (000)					Twelve Month Totals '47 And Other Years		
January	$101,789	+ 6	July	$109,973	− 2	1941	$811,509	+57
February	92,196	+17	August	108,656	− 1	1942	833,476	+53
March	104,313	+ 4	September	99,867	+ 8	1943	866,985	+47
April	115,189	− 6	October	112,863	− 4	1944	1,024,697	+24
May	109,506	− 2	November	107,053	+ 1	1945	1,017,249	+25
June	106,048	+ 2	December	108,245	....	1946	1,017,402	+25
						1947	1,275,699	....

1947 Purchases of Rail

Month	Amt.	% Change	Month	Amt.	% Change	Year	Amt.	% Change
	December '47 Compared to Other Months '47 (000)					Twelve Month Totals '47 And Other Years		
January	$7,810	+69	July	$8,114	+63	1941	$52,234	+96
February	7,109	+86	August	7,710	+71	1942	55,647	+84
March	6,855	+93	September	7,199	+83	1943	60,074	+70
April	6,843	+93	October	11,024	+20	1944	75,763	+35
May	7,050	+87	November	13,130	+ 1	1945	77,038	+33
June	6,459	+104	December	13,204	....	1946	65,302	+57
						1947	102,508	....

1947 Purchases of Crossties*

Month	Amt.	% Change	Month	Amt.	% Change	Year	Amt.	% Change
	December '47 Compared to Other Months '47 (000)					Twelve Month Totals '47 And Other Years		
January	$7,179	−30	July	$8,256	−39	1941	$49,494	+81
February	6,704	−25	August	8,996	−44	1942	63,153	+42
March	7,930	−37	September	7,074	−29	1943	83,402	+ 8
April	8,819	−43	October	6,598	−24	1944	85,202	+ 5
May	8,165	−39	November	6,855	−27	1945	77,389	+16
June	8,174	−39	December	5,013	....	1946	88,478	+ 1
						1947	89,763	....

1947 Purchases of Other Material*

Month	Amt.	% Change	Month	Amt.	% Change	Year	Amt.	% Change
	December '47 Compared to Other Months '47 (000)					Twelve Month Totals '47 And Other Years		
January	$86,800	+ 4	July	$93,603	− 4	1941	$709,781	+53
February	78,383	+15	August	91,950	− 2	1942	714,676	+52
March	89,528	+ 1	September	85,594	+ 5	1943	723,509	+50
April	99,527	−10	October	95,241	− 5	1944	863,732	+25
May	94,291	− 5	November	87,068	+ 3	1945	862,822	+26
June	91,415	− 2	December	90,028	....	1946	863,622	+25
						1947	1,083,428	....

1947 Purchases of Fuel*

Month	Amt.	% Change	Month	Amt.	% Change	Year	Amt.	% Change
	December '47 Compared to Other Months '47 (000)					Twelve Month Totals '47 And Other Years		
January	$58,490	+11	July	$48,482	+34	1941	$349,765	+93
February	54,612	+19	August	55,529	+17	1942	426,335	+59
March	57,447	+13	September	55,124	+18	1943	527,296	+28
April	51,486	+26	October	63,801	+ 2	1944	585,832	+15
May	51,490	+26	November	64,311	+ 1	1945	555,153	+22
June	50,177	+29	December	64,886	....	1946	553,153	+22
						1947	675,835	....

* November and December, 1947, figures are preliminary estimates and 1947 totals are subject to revision.

as the total purchases by the railroads are concerned, they actually have no more material on hand than they have had at times in the past. So goes inflation. It does point though to the fact that the next year, with business still good, should be another banner year in the dollar volume of railroad buying.

1947 Total Purchases (Excl. Equipment)*

Month	Amt.	% Change (Dec '47 Compared to Other Months '47 (000))	Month	Amt.	% Change	Year	Amt.	% Change (Twelve Month Totals '47 And Other Years (000))
January	$160,279	+ 8	July	$158,455	+ 9	1941	$1,161,274	+68
February	146,808	+18	August	164,185	+ 5	1942	1,259,811	+55
March	161,760	+ 7	September	154,991	+12	1943	1,394,281	+40
April	166,675	+ 4	October	176,664	− 2	1944	1,610,529	+21
May	160,996	+ 8	November	171,364	+ 1	1945	1,572,404	+24
June	156,225	+11	December	173,131	....	1946	1,570,555	+24
						1947	1,951,534	....

1947 Inventories of Rail†

Month	Amt.	% Change (Oct '47 Compared to Other Months '47 (000))	Month	Amt.	% Change	Year	Amt.	% Change (Oct '47 Compared to Other Octobers (000))
January 1, '47	$39,192	−36	June	$27,990	−11	October 1, 1941	$25,755	− 3
February	31,447	−21	July	26,536	− 6	1942	20,484	−22
March	31,217	−20	August	28,509	−13	1943	19,764	−26
April	29,775	−16	September	29,766	−16	1944	22,253	+12
May	26,875	− 7	October	24,931	....	1945	25,158	− 1
						1946	25,783	− 3
						1947	24,931	....

1947 Inventories of Crossties†

Month	Amt.	% Change (Oct '47 Compared to Other Months '47 (000))	Month	Amt.	% Change	Year	Amt.	% Change (Oct '47 Compared to Other Octobers (000))
January 1, '47	$83,891	− 5	June	$89,782	−11	October 1, 1941	$44,327	+81
February	88,293	− 9	July	88,686	−10	1942	54,562	+47
March	92,861	−14	August	86,066	− 7	1943	61,665	+30
April	97,549	−18	September	83,771	− 4	1944	70,322	+14
May	89,906	−11	October	80,095	....	1945	63,300	+27
						1946	75,701	+ 6
						1947	80,095	....

1947 Inventories of Other Material†

Month	Amt.	% Change (Oct '47 Compared to Other Months '47 (000))	Month	Amt.	% Change	Year	Amt.	% Change (Oct '47 Compared to Other Octobers (000))
January 1, '47	$476,625	+18	June	$542,096	+ 4	October 1, 1941	$298,149	+88
February	490,734	+14	July	553,227	+ 1	1942	386,346	+45
March	498,159	+65	August	558,118	+ 1	1943	378,022	+49
April	519,985	+ 8	September	555,498	+ 1	1944	430,811	+30
May	535,071	+ 5	October	561,510	....	1945	450,008	+25
						1946	472,764	+19
						1947	561,510	....

1947 Inventories of Scrap†

Month	Amt.	% Change (Oct '47 Compared to Other Months '47 (000))	Month	Amt.	% Change	Year	Amt.	% Change (Oct '47 Compared to Other Octobers (000))
January 1, '47	$12,572	−32	June	$10,929	−22	October 1, 1941	$9,704	−13
February	11,929	−29	July	9,239	− 8	1942	9,544	−11
March	17,017	−50	August	9,880	−14	1943	8,170	+ 4
April	11,221	−24	September	9,979	−15	1944	11,488	−26
May	12,766	−33	October	8,490	....	1945	10,183	−17
						1946	11,424	−26
						1947	8,490	....

1947 Inventories of Fuel†

Month	Amt.	% Change (Oct '47 Compared to Other Months '47 (000))	Month	Amt.	% Change	Year	Amt.	% Change (Oct '47 Compared to Other Octobers (000))
January 1, '47	$49,873	+34	June	$56,510	+18	October 1, 1941	$34,035	+97
February	51,164	+31	July	56,565	+18	1942	51,624	+30
March	52,234	+28	August	56,135	+19	1943	61,925	+ 8
April	51,207	+31	September	63,025	+ 6	1944	67,357	− 1
May	55,973	+20	October	66,929	....	1945	57,279	+17
						1946	54,797	+22
						1947	66,929	....

1947 Total Inventories†

Month	Amt.	% Change (Oct '47 Compared to Other Months '47 (000))	Month	Amt.	% Change	Year	Amt.	% Change (Oct '47 Compared to Other Octobers (000))
January 1, '47	$653,153	+14	June	$727,307	+ 2	October 1, 1941	$411,970	+80
February	673,567	+10	July	734,253	+ 1	1942	522,560	+42
March	691,487	+ 7	August	738,709	+ 1	1943	529,546	+40
April	709,738	+ 5	September	742,039	− 1	1944	602,231	+23
May	720,591	+ 3	October	741,955	....	1945	605,928	+22
						1946	640,469	+16
						1947	741,955	....

* November and December, 1947, figures are preliminary estimates and 1947 totals are subject to revision.
† October, 1947, figures are subject to revision.

THE RAILROADS' FINANCIAL POSITION BRIGHTENS

With more physical property and less debt, they are encouraged by the Interstate Commerce Commission's recent disposition to allow earnings to improve

By **C. B. TAVENNER**
Assistant Managing Editor

The railroads' financial houses have not been in such good order for many years. A majority of the roads that were forced into receivership or trusteeship during the great depression of the Thirties have been or are about to be returned to corporate management. The amount of property behind railroad stocks has been increasing steadily, particularly since the beginning of the recent war. The carriers' fixed charges have been slashed by the processes of the Interstate Commerce Commission's "wringer"; by their purchase, in the open market, at a discount, of their own interest-bearing securities, frequently relatively high-interest-rate junior issues; and by the retirement of callable issues or the substitution of new low-interest issues for others carrying higher rates. By additions of new equipment and property betterments, particularly in the past two years, the railroads have added to their assets, financing these investments either with wartime earnings or on the partial-payment plan, obligating future earnings.

All of these circumstances have produced and are producing greater equities for owners of railroad stocks, but the market's appraisal of those equities continues to be discouragingly low. In the eyes of private investors, seeking security and a dependable return when they risk their funds in an enterprise, railroad securities, especially railroad stocks, continue in low repute, despite the rising ratio of assets to capital obligations, and industrial securities continue to be regarded with much more favor.

The movement of the average price of railroad stocks over the past 20 years has failed to reflect the increase in total property investment during that period, or the even more rapidly increasing aggregate of uncapitalized assets—that is, the difference between the net capitalization (the total amount of stocks and bonds in the hands of the public) and the total property investment, which includes fixed plant and equipment, material inventories, and cash on hand.

The amount of railroad capital stock outstanding has remained relatively constant throughout the two decades, ranging from $6,756 million in 1927 and a maximum of $7,212 million in 1929 to 1946's $7,014 million. The substantial decline in net capitalization that has occurred in this 20-year period, in other

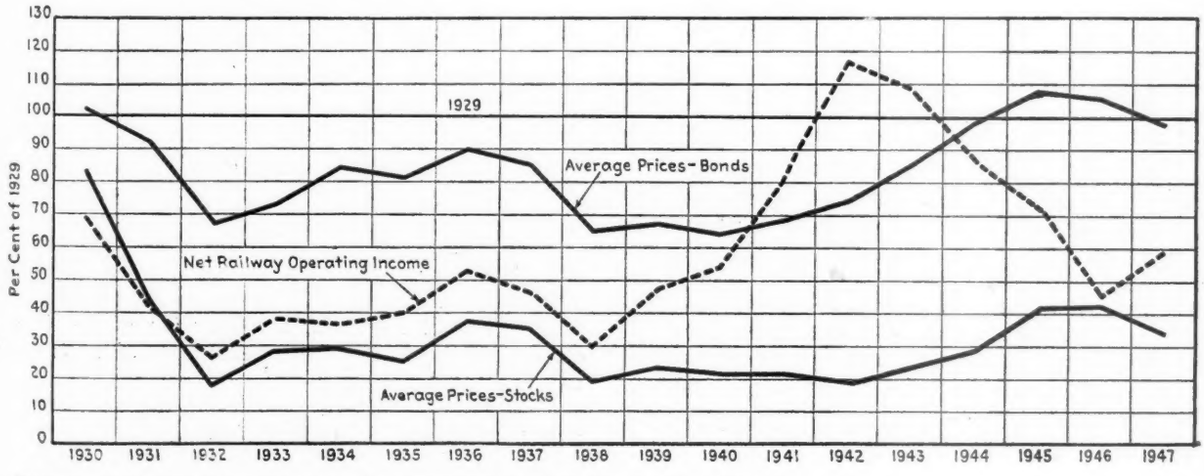
Tables in this article were prepared by Edith Stone, *Railway Age's* librarian, and by Barbara Brokaw.

New Issues of Railroad Securities Offered for Sale in the United States† 1934-1947

(Amounts in thousands of dollars)

Year	Bonds	Stock	Railroad total	Total all industries	Railroad as per cent of total
1934	$176,423	....	$176,423	$397,240	44.4
1935	126,031	....	126,031	2,331,630	5.4
1936	793,618	$3,838	797,456	4,571,670	17.4
1937	344,257	....	344,257	2,309,524	14.9
1938	54,873	....	54,873	2,154,664	2.5
1939	185,474	233	185,707	2,164,007	8.6
1940	323,912	....	323,912	2,677,173	12.1
1941	366,313	....	366,313	2,666,887	13.7
1942	47,726	....	47,726	1,062,288	4.5
1943	161,179	....	161,179	1,169,692	13.8
1944	609,010	350	609,360	3,201,891	19.0
1945	1,453,517	504	1,454,021	6,010,985	24.2
1946	698,519	....	698,519	6,744,108	10.4
1947*	228,144	....	228,144	4,581,864	5.0

* 10 months total.
† Compiled by Securities and Exchange Commission.



Railway Age's indexes of average prices of 20 representative railroad stocks and 20 bonds

Though net operating income increased, railroad security prices did not reflect the improvement

Representative Equipment Note Issues in 1947

Road	Amount	Max. Term. Years	% of Equipment Cost Covered	Interest Cost, %	Sold to
Atlantic & East Carolina	$323,939	9-5/12	100	2.75	Wachovia Bank & Trust Co., Winston-Salem
Bango. & Aroostook	700,000	10	71	2.40	Worcester County Trust Co., Mass.
Chicago & Illinois Midland	1,000,000	2	64	4.	Annuity funds administered under pension systems of the Commonwealth Edison Company and subsidiaries
Escanaba & Lake Superior	80,000	5	100	4.	Stockholders of road
High Point, Thomasville & Denton	40,000	..	20	(a)	(b)
Pere Marquette	628,000	10	75	1.75	National City Bank of New York
Richmond, Fredericksburg & Potomac	400,000	5	89	1.6	First & Merchants Nat'l Bank, Richmond
St. Louis & Troy	10,000	10	82	5.	M. C. Foster, Troy, Mo.

(a) Margin for rate variation up to 3½%.
(b) Unknown. Note to be issued when equipment is ready for delivery.

Representative Equipment Trust Issues Sold in 1947

Road	Maturity	Amount	Int. Rate %	Sold to Banker: Price	Sold to Banker: Cost	Purchaser
Alabama Great Southern, Ser. J	1948–1957	$1,520,000	1½	99.278	1.64	Halsey, Stuart & Co.
Baltimore & Ohio, Ser. S	1948–1957	3,310,000	2	99.401	2.12	Halsey, Stuart & Co.
Ser. T	1948–1957	5,650,000	1⅞	99.276	2.02	Halsey, Stuart & Co.
Ser. U	1948–1957	6,110,000	2	99.309	2.14	Halsey, Stuart & Co.
Ser. V	1948–1957	5,600,000	2	99.07189	2.19	Mellon National Bank & Trust Co., et. al.
Ser. W	1948–1957	2,840,000	2⅛	99.6191	2.20	Halsey, Stuart & Co.
Central of Pennsylvania, Ser. A	1948–1962	1,605,000	2⅜	99.52	2.44	Harris, Hall & Co., et al.
Ser. B	1948–1962	3,750,000	2⅜	99.08	2.51	Halsey, Stuart & Co., et al.
Chesapeake & Ohio	1948–1957	2,300,000	1½	99.219	1.67	Halsey, Stuart & Co., et al.
	1948–1957	1,800,000	1½	99.273	1.64	Harris, Hall & Co., et al.
	1948–1957	1,650,000	1½	99.219	1.65	Halsey, Stuart & Co., et al.
	1948–1957	3,150,000	1¾	99.852	1.78	Halsey, Stuart & Co., et al.
	1948–1957	5,300,000	1¼	99.545	1.84	Halsey, Stuart & Co., et al.
	1948–1957	4,400,000	2	99.5192	2.09	Halsey, Stuart & Co., et al.
Chicago & Eastern Illinois, Ser. E	1948–1962	3,450,000	2¾	99.5407	2.82	Halsey, Stuart & Co., et al.
Chicago & North Western	1948–1957	4,650,000	1¾	98.945	1.96	Salomon Bros. & Hutzler, et al.
Chicago, Indianapolis & Louisville	1948–1957	2,800,000	2	98.52	2.30	Halsey, Stuart & Co.
Chicago, Mil., St. P. & Pac., Ser. Z	1948–1957	6,000,000	1⅞	99.1405	2.04	Halsey, Stuart & Co., et al.
Ser. AA	1948–1957	2,240,000	1⅞	99.5799	1.96	Salomon Bros. & Hutzler, et al.
Chicago, St. P., Minn. & Omaha	1948–1962	1,020,000	2⅜	100.5673	2.29	Halsey, Stuart & Co.
	1948–1957	1,560,000	1¾	98.57	2.04	First Nat'l Bank of Chicago
Cincinnati, New Orleans & Tex. Pac., Ser. K	1948–1957	1,700,000	1½	99.107	1.68	Halsey, Stuart & Co.
Delaware, Lackawanna & Western, Ser. F	1948–1957	2,800,000	2⅛	99.265	2.27	Halsey Stuart & Co., et al.
Denver & Rio Grande Western, Ser. L	1948–1962	2,220,000	2⅛	98.357	2.38	Salomon Bros. & Hutzler
Erie	1948–1957	5,440,000	1¾	99.2799	1.89	Halsey Stuart & Co.
	1948–1957	6,850,000	2	99.54	2.09	First Nat'l Bank of New York, et al.
Gulf, Mobile & Ohio, Ser. D	1948–1960	3,600,000	2	99.2599	2.13	Halsey, Stuart & Co., et al.
Illinois Central, Ser. X	1948–1957	1,200,000	2	99.3705	2.13	Mercantile-Com. Bank Tr. Co. of St. Louis, et al.
Ser. Y	1948–1957	2,500,000	2	99.403	2.13	Harris, Hall & Co., et al.
Illinois Terminal, Ser. C	1948–1957	1,030,000	2	99.2183	2.17	Stroud & Co.
Interstate, Ser. G	1948–1962	2,700,000	2⅛	99.3544	2.22	Harriman, Ripley & Co.
Kansas City Southern, Ser. H	1948–1957	1,760,000	2⅛	100.5567	2.01	Harris Hall & Co., et al.
Missouri-Kansas-Texas	1948–1962	3,900,000	2	99.129	2.13	Halsey, Stuart & Co., et al.
Missouri Pacific, Ser. HH	1948–1957	8,700,000	1⅞	99.161	2.04	Harris, Hall & Co., et al.
New York Central	1948–1957	9,400,000	2⅛	99.532	2.22	Halsey, Stuart & Co., et al.
New York, Chicago & St. Louis	1948–1957	1,000,000	1⅞	99.059	1.81	Halsey, Stuart & Co., et al.
	1948–1957	1,350,000	1⅞	99.442	1.98	Nat'l City Bank of Cleveland, et al.
	1948–1957	3,800,000	1⅞	99.0599	2.06	Halsey, Stuart & Co., et al.
New York, New Haven & Hartford	1948–1962	5,265,000	2	98.67	2.20	Salomon Bros. & Hutzler-Stroud & Co.
	1948–1962	5,955,000	2¼	98.817	2.43	Salomon Bros. & Hutzler, et al.
	1948–1962	7,500,000	2½	98.639	2.71	Salomon Bros. & Hutzler, et al.
	1948–1962	2,820,000	2½	98.20979	2.77	Harris, Hall & Co., et al.
*New York, Ontario & Western	1948–1957	2,600,000	3	Par	....	R. F. C.
Pennsylvania, Ser. R	1948–1962	14,970,000	1⅞	99.209	1.99	Halsey, Stuart & Co., et al.
Ser. S	1948–1962	11,025,000	2⅛	99.079	2.26	Salomon Bros. & Hutzler, et al.
Seaboard Air Line, Ser. A	1948–1957	3,000,000	1¾	99.52	1.84	Shields & Co., et al.
Ser. B	1948–1962	4,500,000	2⅛	99.1699	2.24	Salomon Bros. & Hutzler, et al.
Southern Pacific, Ser. V	1948–1957	11,400,000	2	99.76	2.05	First Natl' Bank of N. Y., et al.
Ser. W	1948–1957	14,500,000	2¼	99.42	2.37	Salomon Bros. & Hutzler, et al.
Western Maryland	1948–1952	3,000,000	1¾	99.817	....	Blair & Co.
Wheeling & Lake Erie, Ser. M	1947–1957	1,680,000	1½	99.419	1.62	Halsey, Stuart & Co., et al.
Ser. N	1948–1957	2,940,000	1½	99.1561	1.67	Mellon Nat'l Bank & Trust Co.-Union Bank of Commerce
Ser. O	1948–1957	3,940,000	1⅞	99.419	1.99	Harriman Ripley & Co.

* Originally noted in January 4, 1947, *Railway Age* Statistical Table of Equipment Trust Issues. Due to postponement of delivery dates from first four months of 1947 to January 1-July 1, 1948, maturity date of the issue was changed from 1947–1956 to 1948–1957.

words, has been almost entirely in interest-bearing obligations, of which the amounts outstanding ranged from 1927's $11,380 million through the 1930 high of $11,880 million to the $8,495 million reported in 1946, the decrease in 1946 under 1930 being 28.5 per cent. Moreover, the quality of these interest-bearing issues has been improved considerably, as a whole, because the Interstate Commerce Commission, in authorizing new issues, has been increasingly rigid in requiring the establishment of substantial sinking funds to care for maturities without renewing the whole indebtedness.

It has been possible for the carriers to increase their property investment while reducing their capitalization, especially their funded debt, only because the owners of the railroads have put the greater part of their earnings back into the properties rather than taking out their profits in the form of dividends. Within limits, of course, this procedure is good business—a normal feature of the operation of the free enterprise system—but the urgent needs of the railroads for capital have led to its excessive use, to the detriment of the stockholders' interests and at the cost of the enduring health of the industry.

Railroad managements find themselves the victims of a dilemma, however, when they undertake to ex-

Railroads in the Hands of Receivers or Trustees on December 31, 1947

Road	Mileage operated	Mileage owned	Date of receivership or trusteeship	Long term debt in hands of public	Capital stock in hands of public	Total securities in hands of public	Receiver's or trustee's certificates in hands of public	Principal amount of obligations in default as to principal and/or interest
Boston & Providence	....(a)	61	Aug. 5, 1938	$2,170,000	$3,668,800	$5,838,800	None	$2,170,000
Central of Georgia	1,816	1,405	Dec. 19, 1932(b)	51,056,467	None	54,779,897	$3,615,840	51,056,467
Central of New Jersey	418	372	Oct. 31, 1939	48,944,519	11,652,800	60,597,319	None	48,731,000
Chicago, Rock Island & Pacific	7,650	4,919	June 7, 1933	255,047,600	128,892,512	383,940,112	10,089,960	161,238,600
Chicago, Rock Island & Gulf	....	635	Oct. 31, 1933	None	None	None	None	None
Choctaw, Oklahoma & Gulf	....	785	Oct. 31, 1933	8,170,000	None	8,170,000	None	None
Peoria Terminal	29(c)	27(c)	Oct. 31, 1933	4,000	None	4,000,	None	4,000
Rock Island, Arkansas & Louisiana	....	376	Aug. 31, 1933	11,453,600	None	11,453,600	None	11,453,600
Rock Island, Memphis Terminal	....	6(c)	Oct. 31, 1933	None	None	None	None	None
Rock Island, Omaha Terminal	....	3(c)	Oct. 31, 1933	None	None	None	None	None
Rock Island, Stuttgart & Southern	....	21	Oct. 31, 1933	None	None	None	None	None
St. Paul & Kansas City Short Line	....	417	Aug. 31, 1933	18,427,880	None	18,427,880	None	18,427,880
Duluth, South Shore & Atlantic	530	426	Jan. 2, 1937	3,816,000	10,800,000	14,616,000	None	3,816,000
Mineral Range	24	24	June 1, 1937	2,800	705,800	708,600	None	2,800
Florida East Coast	575	569	Sept. 1, 1931(d)	56,949,308	37,500,000	94,449,308	None	45,000,000
Georgia & Florida	408	363	Oct. 19, 1929	8,253,919	13,382,441	21,991,081	600,000	8,253,919
Georgia, Florida & Alabama	....(e)	132	Nov. 7, 1931(f)	175,000	1,500,000	1,675,000	None	175,000
Meridian & Bigbee River	50	50	June 15, 1933	500,000	300,000	812,725	1,188,655	500,000
Missouri & Arkansas	365(g)	335	Feb 14, 1947	None	350,000	350,000	None	None
Missouri Pacific	7,037	6,499	Apr. 1, 1933	351,687,414	154,639,600	506,327,014	None	334,665,500
Boonville, St. Louis & Southern	....	0.18	June 1, 1936	23,000	None	23,000	None	23,000
Cairo & Thebes	....	25	Dec. 1, 1937	1,699,000	None	1,699,000	None	1,699,000
Chester & Mount Vernon	....	64	Dec. 1, 1937	None	None	None	None	None
Fort Smith Suburban	....	7	Dec. 1, 1937	None	None	None	None	None
Marion & Eastern	....	3	Dec. 1, 1937	None	None	None	None	None
Missouri Pacific R. R. Corp. in Nebr.	....	....	May 1, 1933	None	None	None	None	None
Nathez & Southern	9	8	Dec. 1, 1937	None	None	None	None	None
New Orleans, Texas & Mexico	191	173	Apr. 1, 1933	40,615,900	859,800	41,475,700	None	None
Asherton & Gulf	32	32	Dec. 1, 1937	None	None	None	None	None
Asphalt Belt	18	18	Dec. 1, 1937	None	None	None	None	None
Beaumont, Sour Lake & Western	146	84	May 1, 1933	None	None	None	None	None
Houston North Shore	....	27	May 1, 1933	None	None	None	None	None
Houston & Brazos Valley	37	37	Dec. 1, 1937	None	None	None	None	None
International-Great Northern	1110	1056	Apr. 1, 1933	45,517,935	None	45,517,935	None	44,927,700
Austin Dam & Suburban	....	2(h)	Dec. 1, 1937	None	None	None	None	None
New Iberia & Northern	104	65	Dec. 1, 1937	None	None	None	None	None
Iberia, St. Mary & Eastern	....	40	Dec. 1, 1937	None	None	None	None	None
Orange & Northwestern	62	62	Dec. 1, 1937	None	None	None	None	None
Rio Grande City	18	18	Dec. 1, 1937	None	None	None	None	None
St. Louis, Brownsville & Mexico	606	560	May 1, 1933	278,606	None	278,606	None	None
San Antonio, Southern	45	29	Dec. 1, 1937	None	None	None	None	None
San Antonio, Uvalde & Gulf	317	314	May 1, 1933	None	None	None	None	None
San Benito & Rio Grande Valley	116	116	Dec. 1, 1937	None	None	None	None	None
Sugar Land	42	19	Dec. 1, 1937	None	None	None	None	None
New Jersey & New York	39	29	June 30, 1938	1,022,960	366,400	1,389,360	None	1,022,960
New York, Ontario & Western	547	340	May 20, 1937	36,906,197	58,114,043	95,020,240	418,944	35,598,546
New York, Susquehanna & Western	120	120	June 1, 1937	13,065,430	269,100	13,334,530	None	12,345,608
Rio Grande Southern	172	172	Dec. 16, 1929	2,728,000	930,300	3,658,300	25,700	2,728,000
Rutland	407	393	May 5, 1938(i)	9,216,000	9,080,300	18,296,300	None	9,216,000
Smoky Mountain	31	29	Mar. 20, 1947	None	75,000	78,750	None	None
Tallulah Falls	57	57	June 25, 1923	None	None	None	None	None
Waco, Beaumont, Trinity & Sabine	42	42	Feb. 8, 1930	None	1,113,000	1,113,000	12,734	None
Wisconsin Central	1,051	906	Dec. 2, 1932(j)	35,317,585	17,032,700	52,350,285	None	35,071,585
Yreka Western	8	8	Sept. 15, 1935	None	7,500	7,500	9,500	None

(a) Operated by the New York, New Haven & Hartford.
(b) Changed to trusteeship June 19, 1940.
(c) Yard tracks and sidings.
(d) Changed to trusteeship April 21, 1941.
(e) Operated by Seaboard Air Line.
(f) Changed to trusteeship July 12, 1944.
(g) Operations ceased Sept. 1946, coincident with strike of train and engine service employees.
(h) Yard switching tracks.
(i) Changed to trusteeship July 21, 1944.
(j) Changed to trusteeship October 1, 1944.

Note:—The effort has been made, in the above table, to list only those securities of bankrupt carriers which are actually in the hands of the investing public—and to exclude securities of one carrier held by an affiliated carrier. Where securities are held by other railways not affiliated with the issuing company, however, they are included in the above list as publicly held. Owing to the complexities of some corporate structures, the decision as to the fact of public or other-carrier ownership has perforce, in some instances, been arbitrary. The purpose has been to give a general picture of the public stake in bankrupt carriers rather than a comprehensive tabulation of legal obligations.

tricate themselves—and the owners of the properties they manage—from this predicament. Additions to capital investment cannot be curtailed—in fact, they must be made on a larger scale if a fully efficient and sufficient system of railroad transportation is to be restored and maintained—and earnings are not great enough (and should not have to be) both to support the entire expenditure for plant improvement and to meet the legitimate dividend expectations of stockholders. If all earnings are paid out in dividends and none turned back into the properties, on the other hand, the railroads' earning power will suffer because their undernourished facilities and service will become more inadequate to meet the public demand for transportation. If, instead, inadequate dividends continue to be paid, or to be in prospect, no new equity capital can be obtained to supplement the earnings going into the enlargement of the properties.

There is a solution, of course. For the immediate situation the prescription is a dose of rate increases that will yield somewhere near an adequate and legally approved rate of return. For the long term the remedy—the only one that promises to effect any worthwhile improvement in the railroads' standing with equity investors—is an implementation of the national transportation policy that will provide the basis for a revival of investor confidence in the soundness of railroad equities by providing machinery to keep revenues, and profits, in line with expenses.

Since the passage of the Transportation Act of 1920—which was the occasion for the recognition by Congress of the government's obligation so to administer

Capitalization and Investment

All line-haul railways (Thousand dollars)

	Net capitalization in hands of public	Total property investment
1927	$18,136,691	$25,508,956
1928	18,510,583	25,885,717
1929	18,679,707	26,492,266
1930	19,065,626	26,955,633
1931	18,941,460	26,825,723
1932	18,893,459	26,736,597
1933	18,830,912	26,523,279
1934	18,652,491	26,330,441
1935	18,342,297	26,213,132
1936	18,335,887	26,298,254
1937	18,319,003	26,451,665
1938	17,987,983	26,389,394
1939	17,698,158	26,423,592
1940	17,629,613	26,641,144
1941	17,568,203	26,940,418
1942	17,314,559	27,309,369
1943	16,754,982	27,957,307
1944	16,276,000	28,213,434
1945	15,667,000	28,580,775
1946	15,508,976	28,839,495

Receiverships and Trusteeships Established in 1947

Name of Road	Mileage Operated	Long Term Debt in Hands of Public	Capital Stock in Hands of Public
Missouri & Arkansas	365*	None	$350,000
Smoky Mountain	31	None	75,000
Total two companies	396	None	$425,000

* Operations ceased September, 1946, coincident with strike of train and engine service employees.

Mileage in the Hands of Receivers or Trustees

(Figures to 1946, Inclusive, from I. C. C. Statistics for Year Ended December 31, 1946. Figures for 1947 Compiled by *Railway Age*)

Year ended	Miles of road operated by receivers or trustees at close of year	Net change during year in miles of road operated	No. of roads in charge of receivers or trustees at close of year
June 30, 1894	40,819	....	192
1895	37,856	– 2,963	169
1896	30,475	– 7,380	151
1897	18,862	–11,614	128
1898	12,745	– 6,117	94
1899	9,853	– 2,892	71
1900	4,178	– 5,675	52
1901	2,497	– 1,681	45
1902	1,475	– 1,022	27
1903	1,185	– 290	27
1904	1,323	+ 138	28
1905	796	– 527	26
1906	3,971	+ 3,176	34
1907	3,926	– 45	29
1908	9,529	+ 5,603	52
1909	10,530	+ 1,001	44
1910	5,257	– 5,273	39
1911	4,593	– 664	39
1912	9,786	+ 5,193	44
1913	16,286	+ 6,500	49
1914	18,608	+ 2,322	68
1915	30,223	+11,615	85
1916	37,353	+ 7,130	94
Dec. 31, 1916	34,804	– 2,550*	80
1917	17,376	–17,428	82
1918	19,208	+ 1,832	74
1919	16,590	– 2,618	65
1920	16,290	– 300	61
1921	13,512	– 2,778	68
1922	15,259	+ 1,747	64
1923	12,623	– 2,636	64
1924	8,105	– 4,518	61
1925	18,687	+10,582	53
1926	17,632	– 1,055	45
1927	16,752	– 880	40
1928	5,256	–11,496	33
1929	5,703	+ 447	29
1930	9,486	+ 3,783	30
1931	12,970	+ 3,484	45
1932	22,545	+ 9,575	55
1933	41,698	+19,153	78
1934	42,168	+ 470	80
1935	68,345	+26,177	87
1936	69,712	+ 1,367	91
1937	70,884	+ 1,172	109
1938	76,938	+ 6,054	109
1939	77,013	+ 75	108
1940	75,270	– 1,743	103
1941	69,859	– 5,411	91
1942	66,904	– 2,955	87
1943	64,758	– 2,146	82
1944	50,497	–14,261	76
1945	39,714	–10,783	72
1946	34,389	– 5,325	65
1947	24,200	–10,189	54

* Represents decrease for six months.

the affairs of a *regulated* industry that its economic health will be unimpaired and beyond question—the railroads never have been allowed in time of peace to earn 6 per cent on their investment. In its fear that some unusual combination of favorable circumstances might once allow the carriers to earn more than enough to meet their bare minimum necessities the commission has so limited their revenues that on the average their earnings generally have been below the subsistence level. The stated purposes of the national transportation policy, therefore, have never been realized.

So long as the boom period of the Twenties lasted, the mileage of railroads in bankruptcy was relatively small, railroad stocks commanded good prices in the markets, and 75 per cent of the stock issued was paying dividends. But by 1933 the percentage of stock yielding dividends had dropped to 31.1 and the mileage in bankruptcy had increased more than 700 per cent.

Prices of railroad and of industrial stocks had dropped with equal precipitancy from their boom-time highs, but the parallel ended in the early Thirties. Equities of unregulated industries then became more attractive, as profits began to be reported in some volume, and the markets' appraisal of these equities improved. In the next five years the average price of industrial stocks increased $101 a share, while the average price of railroad stocks in 1938 was less than it was in 1932 (though there had been an intermediate rise, at one point amounting to $23 a share). By that time, of course, there were 77,000 miles of railroad in bankruptcy, and earnings of all railroads were at the rate of 1.6 per cent per annum on the depreciated property investment. The appraisal of the markets was clear; the lack of a system to make the purposes of the national transportation policy effective was clear—and the credit of the railroads had suffered correspondingly.

The Picture Ten Years Ago

The picture was gloomy in 1938. Railroad equipment and facilities were not fully utilized, and many people were saying that they never would be needed again. The railroads were obsolescent, it was said; they were on the way out, following the canal and the stagecoach, and the nation's transportation needs were going to be met in the future by the truck and the airplane. Most railroads could not expect to pay dividends because their stock was watered, it was said, or represented investment in unproductive facilities. The introduction of the streamlined passenger train had brought some light into the darkness, but the relative financial standing of the industry had never been lower.

In the decade since 1938 all facets of the railroad financial picture have changed for the better—except one. The industry's capacity has been taxed by war and postwar traffic to the very utmost, and the complaints and congressional investigations have been not of over-development but of inadequate facilities. Public appreciation of the railroads' contribution to the winning of the war and of their basic importance as an agency of transportation has been vastly enlarged. During 1947 alone 14 railroads representing 11,535 miles of line were removed from bankruptcy proceed-

ings and returned to corporate management, while only two roads, with a total of 396 miles of line were placed in the hands of the courts. As the year closed 54 companies were in the hands of trustees or receivers, representing 24,200 miles of line. This total, the smallest since 1932, is in process of further substantial reduction, as consummation of other reorganization plans long approved, and long delayed by litigation, appeared imminent as the year ended.

The current greatly improved capital position of the railroads already has been outlined. The percentage of stock outstanding on which dividends are being paid is close to double the 1938 figure. At the end of 1946 the total property investment was $28,839 million, against which the net capitalization outstanding was $15,509 million, including $7,014 million of stock and $8,495 million of funded debt. The investment in property not represented by securities was $13,330 million, or $190 for every $100 of stock. Annual fixed charges of Class I roads, which had been $659 million as recently as 1942, were down to $469 million by the end of 1946. According to every variety of statistical comparison, then, except one, the railroads' financial position in 1947 was much sounder than it had ever been since the Transportation Act of 1920 was enacted.

The one exception, of course, is the market's appraisal of the worth of railroad equities. Though the statistics for the line-haul railroads show property investment of $290 for each $100 of stock outstanding, the average market price of 20 leading railway stocks in December, 1947, was less than $49 a share. (At the end of gloomy 1938 the same average was $31.70 a share.) The market's appraisal is not based on potential values not readily realized. The market's appraisal is based essentially on consistent ability to earn a profit and pay dividends. The market at the end of 1947 still was showing its doubt that, after labor is paid, and fuel and supplies are bought, and the tax bills are met, there will be adequate and dependable net earnings left over with which the railroads can finance improvements *and* pay dividends.

Encouraging Happenings

There were favorable developments in the offing that were not foreseen in 1938. There were favorable developments that actually occurred in 1947, and indications of more to come in the near future, that add brightness to the railroads' prospects as they enter the new year. The most significant of these developments is the evidence that the Interstate Commerce Commission is giving of a new attitude toward its duty to foster the railroads' welfare in the public interest. In 1946 months dragged by, after major wage increases were effected, before the commission grudgingly authorized rate increases to offset the additional expense in part. But in 1947 an interim adjustment of freight rates was authorized within a few weeks after the institution of the higher wage rates which impelled the railroads' Ex Parte 166 rate increase proposal, and in permitting that interim increase the commission pointedly stated its understanding that its duty clearly includes attention to the railroads' financial welfare. In addition, of course, the commission evidenced its new attitude by approving passenger fare increases, by a substantial interim rise in mail transportation rates, by increasing express rates, and particularly by handling with relative expedition the hearings and arguments attending the disposition of the general freight rate-increase proceeding. Such heartening developments, if long continued, cannot help but further improve the railroads' ability to enlarge their facilities to meet the national need for economical and efficient transportation and, at the same time, their ability to compensate with reasonable regularity and adequacy the owners of the capital who have provided those facilities.

Tables accompanying this discussion show the railroads' activities in 1947 in issuing new securities—that is, equipment obligations and debt refunding—and the progress made in extricating properties from reorganization proceedings.

Summary of Railroad Receiverships and Trusteeships, 1876 to 1947

	Roads Placed in Receivership or Trusteeship		Roads Taken from Receivership or Trusteeship*			Roads Placed in Receivership or Trusteeship		Roads Taken from Receivership or Trusteeship*	
Year	No. of roads	Miles	No. of roads	Miles	Year	No. of roads	Miles	No. of roads	Miles
1876..	42	6,662	30	3,840	1911..	5	2,606	13	1,386
1877..	38	3,637	54	3,875	1912..	13	3,784	12	661
1878..	27	2,320	48	3,906	1913..	17	9,020	6	1,159
1879..	12	1,102	65	4,909	1914..	22	4,222	9	1,470
1880..	13	885	31	3,775	1915..	12	20,143	11	3,914
1881..	5	110	29	2,617	1916..	9	4,439	26	8,355
1882..	12	912	16	867	1917..	19	2,486	20	10,963
1883..	11	1,990	18	1,354	1918..	8	3,519	11	763
1884..	37	11,038	15	710	1919..	7	244	8	459
1885..	44	8,836	22	3,156	1920..	10	541	7	380
1886..	13	1,799	45	7,687	1921..	14	1,744	11	4,173
1887..	9	1,046	31	5,478	1922..	12	4,330	15	6,151
1888..	22	3,270	19	1,596	1923..	10	2,218	8	637
1889..	22	3,803	25	2,930	1924..	11	920	14	3,992
1890..	26	2,963	29	3,825	1925..	6	11,368	6	638
1891..	26	2,159	21	3,223	1926..	6	88	12	12,852
1892..	36	10,508	28	1,922	1927..	6	924	5	142
1893..	74	29,340	25	1,613	1928..	1	19	4	209
1894..	38	7,025	42	5,643	1929..	3	634	5	562
1895..	31	4,089	52	12,831	1930..	4	4,752	2	1,048
1896..	34	5,441	58	13,730	1931..	19	5,195	2	102
1897..	18	1,537	42	6,675	1932..	13	11,817	8	394
1898..	18	2,069	47	6,054	1933..	18	21,222	2	298
1899..	10	1,019	32	4,294	1934..	1	81	2	40
1900..	16	1,165	24	3,477	1935..	16	29,018	5	436
1901..	4	73	17	1,139	1936..	4	8	3	122
1902..	5	278	20	693	1937..	23	1,937	2	179
1903..	9	229	13	555	1938..	9	6,194	8	290
1904..	8	744	13	524	1939..	3	733	4	401
1905..	10	3,593	6	679	1940..	..	....	6	3.675
1906..	6	204	8	262	1941..	1	25	9	5,031
1907..	7	317	6	114	1942..	4	961	7	2,230
1908..	24	8,009	3	138	1943..	3	23	6	394
1909..	5	859	12	2,629	1944..	1	....	8	13,096
1910..	7	735	17	1,100	1945..	1	96	5	10,833
					1946..	..	....	7	4,832
					1947..	2	396	14	11,535

* Prior to 1938 these figures covered foreclosure sales only.

Railroads Removed from Receivership or Trusteeship During 1947

Name of Road	Mileage operated
Alton	959
Kansas City, St. Louis & Chicago	....
Louisiana & Missouri River	....
Denver & Rio Grande Western	2,366
Denver & Salt Lake Western	....
Hoboken Manufacturers	*
Middletown & Unionville	14
Murfreesboro-Nashville	15
New York, New Haven & Hartford	1,838
Hartford & Connecticut Western	....
Old Colony	....
Providence, Warren & Bristol	....
Pittsburg, Shawmut & Northern	123
St. Louis-San Francisco	4,645
St. Louis Southwestern & Affiliated Companies	1,575
Total	11,535

* Removed from trusteeship in 1946.

Among the leading issues of bonds marketed during the year were the following:

In December the GEORGIA RAILROAD & BANKING COMPANY was authorized by the I. C. C. to issue at par a promissory note for not exceeding $900,000 to evidence a loan of a like amount, the proceeds to be applied to the retirement of $944,000 of 4 per cent debentures, due January 1, 1947, and to pledge such debentures for the proposed note.

In August the BALTIMORE & OHIO was authorized by the I. C. C. to pledge and repledge all or any part of $75,000,000 of first-mortgage 5 per cent bonds, $45,000,000 of Southwestern division first-mortgage 5 per cent bonds, and $63,031,000 of 30-year 4½ per cent convertible bonds, which it may reacquire and hold uncanceled, as collateral security for short term notes. The pledge or repledge is to be made and, if required by the payee, to be maintained in the ratio of not exceeding $125 of bonds, at the prevailing market price at the time of pledge, to each $100 face amount of notes.

Also the commission authorized the B. & O. to pledge and repledge all or any part of not exceeding $36,798,000 of Pittsburgh, Lake Erie & West Virginia Series A 4 per cent refunding-mortgage bonds, and $122,639,000 of Series G, J, K, and M refunding and general-mortgage bonds, which it may reacquire and hold uncanceled, as collateral security for short term notes subject to similar conditions.

In January the BESSEMER & LAKE ERIE was authorized by the I. C. C. to assume liability for $12,000,000 of Series A, first-mortgage bonds, which the same decision authorized the Pittsburgh, Bessemer & Lake Erie to issue. Also approved was a selling price of 98.8099 and accrued interest for the issue with a 2⅞ per cent interest rate, the bid of a syndicate headed by Halsey Stuart & Co., which had been accepted subject to commission approval and which will make the average annual cost approximately 2.92 per cent. The proceeds provided funds for the payment of existing indebtedness of the P. B. & L. E., including a $9,930,000 bond issue which matured January 1. The new bonds were dated December 1, 1946, and will mature December 1, 1996. They will be redeemable at 105 and accrued interest to and including November 30, 1951, the redemption price decreasing gradually thereafter until it reaches par on December 1, 1993.

In October the CHICAGO GREAT WESTERN was authorized by I. C. C. to pledge not exceeding $437,000 of first-mortgage Series A 4 per cent bonds and $548,000 of general income mortgage 4½ per cent bonds, now held in its treasury, as collateral for a note or notes to be issued. The bonds are due January 1, 1988, and January 1, 2038, respectively. Proceeds of the loan will be used to partially reimburse the Reconstruction Finance Corporation, to which the C. G. W. owed $5,600,000.

In April the GALVESTON, HOUSTON & HENDERSON was authorized by the I. C. C. to issue at par not exceeding $1,672,000 of guaranteed serial collateral notes, the proceeds of which were to be applied to the retirement of a like indebtedness to the Reconstruction Finance Corporation. As collateral security the applicant has been authorized to issue and pledge $2,801,500 of a 4 per cent Series B first-mortgage bonds, then pledged with R. F. C. At the same time, the commission authorized the Missouri-Kansas-Texas and the International-Great Northern to assume liability for the notes. The road borrowed $1,672,000 from the South Texas Commercial National Bank, Houston, through the issuance of these notes, maturing semi-annually in amounts ranging from $72,314 on October 15, 1947, to $95,792 on April 15, 1956.

In April the GULF, MOBILE & OHIO was authorized to assume liability in respect of its proportionate share of the principal, interest and sinking fund installments of $40,312,000 of Terminal Railroad Association of St. Louis 2⅞ per cent Series D refunding and improvement mortgage bonds; to assume liability in respect of its proportionate share of the principal, premium and interest of $47,000,000 of Kansas City Terminal first-mortgage bonds; to assume liability of not exceeding $2,093,800 of Kansas City, St. Louis & Chicago first-mortgage guaranteed 4½ per cent bonds; to assume liability to pay $29,220 of coupons matured on Chicago & Alton refunding-mortgage 3 per cent bonds; and to issue a promissory note or notes for $30,233,350 to evidence a bank loan of that amount. The notes were issued without competitive bidding.

In November the JACKSONVILLE TERMINAL was authorized by the I. C. C. to issue $4,000,000 of Series A first mortgage 3⅜ per cent bonds, the proceeds of which are to be applied toward the redemption on January 1, 1948, of the following securities: (1) $100,000 of first and general mortgage 50-year 5 per cent gold bonds; (2) $2,400,000 of Series A refunding and extension mortgage 5 per cent gold bonds; (3) $1,100,000 of Series B refunding and extension mortgage 6 per cent gold bonds; and (4) $400,000 of Series C refunding and extension mortgage 4½ per cent bonds, all of which are due July 1, 1967. The bonds are callable at prices ranging from 105 to 107½. The new Series A bonds are dated December 1 and will mature December 1, 1977. They were sold, subject to commission approval to the First Boston Corporation and associates at 100.32, the average annual cost to the road will be approximately 3.36 per cent, and will be redeemable on or after December 1 at prices ranging from 103⅜ to and including December 1, 1957, decreasing gradually each six years thereafter to 100⅞ to and including December 1, 1957, and thereafter at par, with accrued interest.

In November the KENTUCKY & INDIANA TERMINAL was authorized by the I. C. C. to pledge and repledge to and including June 30, 1949, $511,000 of first mortgage 4½ per cent gold bonds as collateral security for notes.

In April the MACON, DUBLIN & SAVANNAH was authorized by the I. C. C. to extend from January 1, 1947, to January 1, 1972, the date of maturity of not exceeding $1,733,000 of its first-mortgage 40-year 5 per cent gold bonds.

In February the MISSOURI-KANSAS-TEXAS was authorized by the I. C. C. to (1) issue a $5,000,000 promissory note to the Republic National Bank of Dallas, Texas, to evidence a loan of like amount; (2) to procure the authentication and delivery of $10,000,000 of Series F prior-lien mortgage 4 per cent gold bonds and (3) to pledge and repledge from time to time all or any part of the Series F bonds as collateral security for the note. The note, to be issued at par, was to bear interest at the rate of 2¾ per cent yearly payable in 22 consecutive quarterly installments of $175,000 each, starting December 31, 1947, with the remaining $1,150,000 payable 3 months after the final installment. Proceeds are to be applied toward the purchase from time to time of the outstanding first mortgage 4 per cent bonds of the old Missouri, Kansas & Texas Railway and/or the prior-lien mortgage 5 per cent, 4½ per cent and 4 per cent bonds of the road as the latter may deem feasible.

In September the MISSOURI PACIFIC was authorized by the I. C. C. to extend the maturity date of not exceeding $500,000 of first mortgage bonds of the Iron Mountain of Memphis from August 1 to January 31, 1965.

In March the NORWICH & WORCESTER, a lessor of the New York, New Haven & Hartford, was authorized by the I. C. C. to issue $1,800,000 of Series B first mortgage 4½ per cent gold bonds, the proceeds of which were to be applied toward the retirement of a like principal amount of Series A 4½ per cent first mortgage gold bonds which matured March 1. The bonds were sold to Adams & Peck at par with a 4½ per cent interest rate and will mature March 1, 1967, being callable meanwhile after March 1, 1948, at prices ranging from 105.04 to and including March 1, 1951, to par after March 1, 1963.

In October the PROVIDENCE & WORCESTER, also a lessor of the New York, New Haven & Hartford, was authorized by the I. C. C. to issue not exceeding $1,500,000 of Series A first-mortgage 4¾ per cent bonds, the proceeds of which were to be applied to the retirement of a like amount of first-mortgage 4 per cent bonds, due October 1. The Series A bonds, secured by a new first mortgage, were dated October 1 and will mature October 1, 1967. They were sold to Adams & Peck and H. Hentz & Co. at 100.51 with an average annual cost of approximately 4.71 per cent.

In November the I. C. C. modified the above order to permit this road to retain the premium received by it on the sale of $1,500,000 of first-mortgage Series A 4¾ per cent bonds and to apply 1/40 thereof on each interest-pay-

(*Continued on page 222*)

COMMUNICATION TRENDS DURING 1947

By MAURICE PEACOCK
Associate Editor—Signaling and Communications

Herewith in tabular form is a record of the installations of communication facilities which were placed in service during 1947 on the railroads in the United States and Canada. These facilities are of such a varied nature that no unit of comparison can be applied to all forms of the construction, and, therefore, there is no basis to compare the overall volume of construction in succeeding years.

One of the big items in communications work is to rebuild pole lines, and in 1947 about 5,481 mi. of such lines were rebuilt, which is an increase over the 4,686 mi. rebuilt in 1946. A point of interest, however, is that the bulk of this work, 3,890 mi., was done on railroad-owned lines, whereas only 475 mi. of lines owned jointly with other than railroad companies were rebuilt, as compared with 1,283 mi. rebuilt in 1946. The reason for this is that the commercial communications companies are relinquishing ownership or joint ownership of pole lines on railroads, and are adopting beam radio for transmission of message traffic between important cities. The railroads, on the other hand, must continue the ownership and maintenance of pole lines because radio is not yet practicable for communication locally to numerous intermediate offices.

Another long-standing gage of new communications construction has been the annual installations of new copper line wire. The fact that only 4,687 mi. of new line wire were installed in 1947, as compared with 9,491 mi. in 1946, however, is not a true indication of a corresponding reduction in the activity of adding new telegraph and telephone circuits. Nowadays a large percentage of the additional circuits for printer telegraph and long-distance telephone service between distant cities is obtained by modern electronic equipment known as carrier, by means of which high-frequency currents can be superimposed on existing line

Centralized Traffic Control Completed in 1947

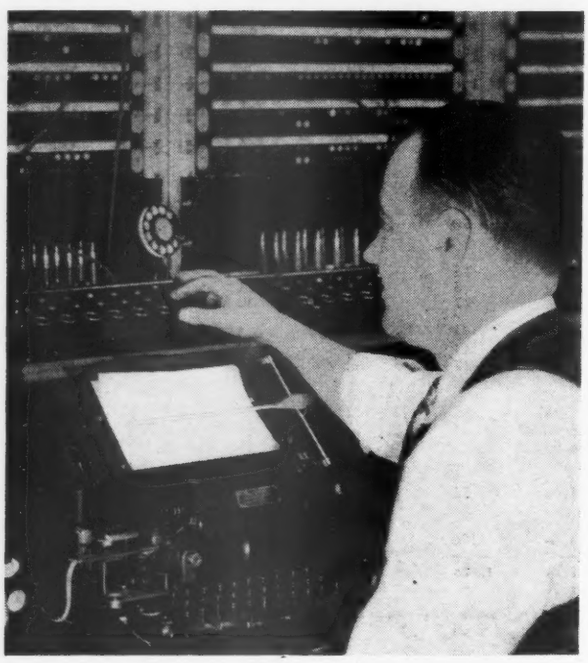
Railroad	Location	Miles of Road	Number of Levers	Number of Power by Levers	Number of Signals Controlled Signals	Number of Intermediate Automatic Signals	Manufacturer
A. T. & S. F.	Elinor, Kan. to Eldorado	47.4s	28	14	42	22	Union
	Canadian, Tex. to Pampa	42.2s	48	17	47	28	Union
A. C. L.	M. P. 19 to M. P. 20	2.0d	5	3	9	..	Union
	M. P. 19 to M. P. 21.5	2.5s	1	..	2	..	Union
	M. P. 25 to M. P. 28	6.0d	11	5	7	..	Union
B. & M.	Wamesit, Mass. to Lowell	3.3d	53	48	40	4	G. R. S.
C. P.	Leaside, Ont. to Donlands	1.1s	3	..	3	..	G. R. S.
C. of Ga.	Payne, Ga. to Collier	26.2s	15	7	29	16	Union
C. & O.	Sewell, W. Va. to Macdougal	11.0d	30	9	38	..	Union
	Johns Creek, Ky. to Beaver Jct	12.0s 5.0d	19	8	19	14	Union
	Aden, Ky. to Olive Hill	8.0s	14	8	20	..	Union
	Beaver Jct., Ky. to Martin	5.0s	6	..	7	2	Union
C. & E. I.	Clinton, Ind. to Evansville	123.0s	81	30	113	66	Union
C. R. I. & P.	Peck, Kan. to Herington	87.6s	33	14	56	50	....
	Caldwell, Kan. to El Reno, Okla.	106.5s	36	17	52	76	....
D. L. & W.	Binghamton, N. Y. to Chenango	4.9s 7.7d	10	4	10	13	Union
G. M. & O.	Rinaker, Ill. to Plainview	8.3s	4	2	7	4	G. R. S.
	Murphysboro, Ill. to Tamms	42.8s	24	12	36	21	G. R. S.
I. C.	Central City, Ky. to Pond	14.1s	16	..	4	16	Union
L. & N.	Doyle, Ky. to Strawberry	105.0s	50	23	98	54	G. R. S.
M. P.	Little Rock, Ark. to Benton	22.0d	17	11	19	..	G. R. S.
	Pleasant Hill, Mo. to Elm Park	22.5s	24	10	30	..	G. R. S.
	Almont, Ark. to Briark	3.6s	4	2	7	..	G. R. S.
	Texarkana, Ark. (addition)	....	1	1	1	..	G. R. S.
G. C. L.	B. M. Siding, Tex. to Edmonds	26.5s	19	8	28	..	G. R. S.
	Westover, La. to No. Baton Rouge	10.4s	15	6	27	..	G. R. S.
N. C. & St. L.	Chattanooga, Tenn. to Junta, Ga.	86.6s	78	29	56	..	Union
N. Y. C. & St. L.	Arcadia, Ohio to Lima	40.0s	24	9	29	15	Union
N. & W.	Vera, Ohio to Clare	91.5s 4.7d	71	34	133	60	Union
	Phoebe, Va. (addition)	....	1	1	1	..	Union
N. P.	Helena, Mont. to Garrison	46.0s	50	24	72	41	G. R. S.
St. L.-S. F.	Sleeper, Mo. to Springfield	54.8s 9.7d	49	26	68	56	Union
	Jasper, Ala. to Birmingham	41.7s	44	21	61	41	Union
St. L. S. W.	Lewisville, Ark. to Gertrude	25.0s	8	3	11	4	Union
Southern	U. S. Jct., Ky. to Flatrock	14.3s 4.5d	27	11	30	17	G. R. S.
W. & L. E.	Harmon, Ohio to Kemery	7.0s	3	..	3	5	Union
	Brewster, Ohio to Wellington	50.0s	44	14	43	23	Union
U. P.	LaGrande, Ore. to Huntington	100.0s	87	38	147	64	Union
CONTROLLED AUTOMATIC BLOCK With Hand-Throw Switches							
C. M. St. P. & P.	Selby, S. D. to Mobridge	21.1s	66	2	26	4	Union
	McLaughlin, S. D. to Hettinger, N. D.	92.1s	74	..	68	36	Union
	Rhame, N. D. to Marmath	14.5s		..	16	7	Union
CONTROLLED MANUAL BLOCK With Hand-Throw Switches							
W. P.	Niles, Cal. to Stockton	62.0s	55	..	72	28	Union
CONTROLLED SIGNALS With Power-Operated Siding Switches							
S. A. L.	Hamlet, N. C. to Savannah, Ga.	248.0s	130	65	223	66	Union
		1,694.2s 75.9d	1,378	536	1,810	853	
Road Miles		1,770.1					
Track Miles		1,846.0					

Legend: In "Miles of Road" column: s = single track; d = double track.

Permanent Installations of Yard Communication Placed in Service During 1947

Railroad	Location	No. of Locomotives Equipped	No. of Fixed Stations	No. of Remote Control Stations	Space or Inductive Equipment	Manufacturer of Equipment	Frequency Allocated by F. C. C.
A. & S.	East St. Louis, Ill.	3	1	1	Space	Comco	158.79 mc.
A. T. & S. F.	Chicago	10	2	..	Space	Bendix	160.65 mc.
	Argentine, Kan.	16	2	3	Space	Bendix, Railway Radiotelephone, Inc.	159.45 mc.
	San Francisco, Cal.	6	1	1	Space	Bendix	161.37 mc.
	Los Angeles, Cal.	10	1	1	Space	Bendix	161.37 mc.
A. C. L.	Rocky Mount, N. C.	5	2	..	Inductive	U. S. & S. Co.	.....
B. & M.	Mechanicville, N. Y.	5	1	1	Space	G. R. S. Co.	160.11 mc.
C. P.	Toronto, Ont.	4	3	..	Space	Northern Electric Company	.....
C. of Ga.	Atlanta, Ga. (terminal)	6	2	2	Space	Bendix	161.19 mc.
C. of Penna.	Allentown, Pa.	2	1	..	Space	G. R. S. Co.	160.89 mc.
C. & O.	Ludington, Mich.	6**	1	..	Space	Bendix	160.11 mc.
	Milwaukee, Wis.	..	1	..	Space	Bendix	160.11 mc.
	Manitowoc, Wis.	..	1	..	Space	Bendix	160.11 mc.
C. B. & Q.	Kansas City, Mo.	15	1	1	Space	Bendix	159.69 mc.
	Galesburg, Ill.	15	3	..	Space	Bendix	160.23 mc.
							161.43 mc.
							161.85 mc.
C. R. I. & P.	Blue Island, Ill.	15	2	3	Space	Sperry and Galvin	161.61 mc.
	Armourdale, Kan.	13	6	1	Space	Sperry, Galvin and Belmont	161.61 mc.
							159.33 mc.
D. & R. G. W.	Denver, Colo.	6	..	4	Space	Bendix	160.83 mc.
D. L. & W.	Hoboken, N. J.	10	1	1	Space	Bendix	160.29 mc.
E. J. & E.	Whiting, Ind.	2	1	..	Space	Bendix	159.21 mc.
Erie	New York Harbor	10*	..	..	Space	Westinghouse	158.85 mc.
	Jersey City, N. J.	..	1	..	Space	Westinghouse	158.85 mc.
M.-K.-T.	Dallas, Tex.	7	1	1	Space	Bendix	159.93 mc.
N. Y. C. (E. of Buffalo)	Gardenville, N. Y.	4	1	..	Space	G. R. S. Co.	160.41 mc.
	Dewitt, N. Y. (westbound hump)	4	1	..	Space	G. R. S. Co.	158.79 mc.
	Dewitt, N. Y. (eastbound hump)	4	1	..	Space	G. R. S. Co.	161.61 mc.
	Selkirk, N. Y.	4	1	..	Space	G. R. S. Co.	158.79 mc.
I. H. B.	Gibson, Ind. (freight classification yard)	5	1	..	Space	G. R. S. Co.	161.67 mc.
N. P.	Seattle, Wash.	4	1	1	Space	Bendix	161.13 mc.
Penna.	Columbus, Ohio	3	1	..	Inductive	U. S. & S. Co.	.....
	Indianapolis, Ind.	3	1	..	Inductive	.....	.....
St. L.-S. F.	Springfield, Mo.	4	1	3	Space	Bendix	161.97 mc.
S. A. L.	Richmond, Va.	9	2	2	Space	RRT, Inc.	159.33 mc.
		1***	..	1****	.....	.....	160.17 mc.
	Savannah, Ga.	9	1	1	Space	RRT, Inc.	159.33 mc.
				1****	.....	.....	160.17 mc.
	Atlanta, Ga.	7	1	1	Space	Comco	160.17 mc.
	Tampa, Fla.	7	2	..	Space	Comco	159.33 mc.
		1***	..	..	.....	.....	160.17 mc.
W. M.	Baltimore, Md.	5	1	..	Space	Bendix	158.67 mc.
							158.43 mc.
U. P.	Pocatello, Idaho	7	2	..	Space	Bendix	161.29 mc.
						Motorola	161.41 mc.
Totals		247	51	30			

Legend: * = tug boats; ** = ferry boats; *** = automobiles; **** = dispatch points.



A modern printing telegraph machine and network switchboard

New Circuit Miles Derived in 1947 by Superimposing Carrier on Existing Line Wires

Railroad	New Mileage of Long-Distance Telephone Circuits	New Mileage of Telegraph Circuits	New Mileage of Printing Telegraph Circuits
A. T. & S. F.	601.0	617.0	.....
A. C. L.	1,378.5	.....	.....
B. & O.	2,058.0	.....	.....
C. N.	2,747.0	6,939.0	890.0
C. P.	2,148.5	2,536.8	4,861.9
C. B. & Q.	1,090.0	.....	.....
C. M. St. P. & P.	.....	.....	1,101.0
C. St. P. M. & O.	980.0	.....	.....
D. T. & I.	307.0	.....	.....
D. M. & I. R.	349.4	.....	.....
Erie	239.7	.....	456.5
G. N.	102.0	.....	.....
G. M. & O.	2,120.0	.....	3,694.0
K. C. S.	431.3	.....	.....
L. V.	182.4	.....	.....
L. & N.	692.0	172.0	.....
M. P.	594.0	.....	253.0
N. Y. C. (E. of Buffalo)	582.9	.....	425.8
Line West	464.5	.....	.....
C. C. C. & St. L.	604.1	.....	283.4
Mich. Cent.	.....	.....	238.5
P. & L. E.	125.9	.....	.....
N. & W.	104.0	.....	.....
N. P.	.....	.....	3,177.0
St. L. S. W.	690.0	.....	.....
S. A. L.	364.0	.....	.....
Southern	329.8	.....	.....
C. N. O. & T. P.	676.0	.....	.....
S. P.	.....	.....	5,800.5
T. & P.	755.0	.....	.....
W. M.	167.0	.....	.....
W. P.	.....	301.0	.....
Totals	20,884.0	10,565.8	21,271.1

wires. During 1947 a total of 52,720 circuit miles were obtained on the railroads by the installation of these carrier systems.

In 1947 telephone train dispatching was installed on 2,192 mi., an increase over the 1,590 mi. of 1946. A total of 18,299 mi. of circuits for long-distance telephone service were placed in operation during 1947, as compared with 25,348 mi. the previous year. An explanation of the decrease is that the 25,348 mi. for 1946 was a very high annual figure, resulting in part from work planned during the war and carried over into 1946 for completion.

In spite of several discouraging factors, the installation of radio and inductive systems of road train communication was continued actively during 1947, five projects, including 36 locomotives, 36 cabooses and 14 wayside stations, being equipped and placed in service. Also, similar radio and inductive communication systems were installed in yards and terminals—a total of 38 projects, including 247 mobile units and 51 fixed units, being completed. This is a big increase as compared with similar construction in 1946.

As applying to certain types of yards and freight-houses, several roads have applied unusual systems of talk-back loud-speaker communication systems, this form of construction during 1947 including 436 speakers and 34 control stations. Also in 1947 several railroads evidenced renewed interest in the construction of intra-train telephones for communication between passengers in various parts of a train, as well as between the enginemen and other employees.

Telegraph and Printing Telegraph Placed in Service in 1947

Railroad	New Mileage of Telegraph Circuits	New Mileage of Printing Telegraph Circuits
A. T. & S. F.	.....	121.6
A. C. L.	484.4	.....
B. & O.	3,269.0	3,269.0
C. N.	7,969.0	2,125.0
C. P.	44.0	5,790.1
C. & O. (P. M.)	.....	218.0
C. M. St. P. & P.	.....	1,101.0
C. R. I. & P.	510.0	.....
C. St. P. M. & O.	589.0	.....
C. & S.	8.0	.....
D. & R. G. W.	548.6	.....
Erie	.....	639.0
F. E. C.	30.4	.....
G. N.	70.0	.....
G. M. & O.	.....	4,115.0
I. C.	.....	759.0
M. P.	.....	558.8
N. Y. C. (E. of Buffalo)	.....	1,264.2
Line West	.....	541.8
B. & A.	.....	201.0
C. C. C. & St. L.	.....	780.2
Mich. Cent.	.....	737.9
N. Y. C. & St. L.	.....	2,006.3
N. Y. N. H. & H.	.....	43.0
N. & W.	.....	212.0
Penna.	.....	151.0
St. L. S. W.	.....	135.0
S. P.	.....	5,800.0
U. P.	.....	710.6
Totals	13,511.4	31,279.5

New Mileage of Telephone Train Dispatching and Long-Distance Telephone Service

Railroad	New Mileage of Road Dispatched by Telephone	Miles of New Long-Distance Telephone Circuits
A. T. & S. F.	.....	778.5
A. C. L.	.....	1,403.4
B. & O.	.....	2,058.0
C. N.	331.0	3,251.0
C. P.	165.7	2,684.5
C. & O.	24.2	90.0
C. B. & Q.	.....	1,112.0
C. M. St. P. & P.	.....	40.9
C. St. P. M. & O.	.....	1,470.0
D. & H.	15.9	.....
D. & R. G. W.	1,024.4	.....
Erie	.....	239.7
G. N.	.....	102.0
G. M. & O.	326.0	2,120.0
K. C. S.	197.4	.....
K. & I. T.	16.5	.....
L. & N.	23.0	963.0
M. St. P. & S. S. M.	.....	40.0
M. P.	.....	619.9
Texas Division	48.0	.....
N. Y. C. & St. L.	.....	64.0
St. L. S. W.	.....	815.0
S. A. L.	.....	364.0
Southern	.....	.....
Caro. & N. W.	20.3	.....
S. P.	.....	.....
T. & N. O.	.....	83.7
Totals	2,192.4	18,299.6

Comparison of Communication Plant Facilities Installed on the Railroads in the United States and Canada During 1947 and 1946

	1947	1946
Miles of new or rebuilt pole line:		
Railroad owned	3,890.6	1,839
Commercially owned	1,115.2	1,564
Jointly owned	475.3	1,283
Totals	5,481.1	4,686
Mileage of new copper line wire:		
Railroad owned	4,687.1	9,491
Commercially owned	1,033.6	3,001
Totals	5,720.7	12,492
New mileage of road dispatched by telephone	2,192.4	1,590
New mileage of long-distance telephone circuits	18,299.6	25,348
New mileage of printing telegraph circuits	31,279.5	53,446
New mileage of communication circuits derived by use of carrier	52,720.9	72,161

Loud-Speaker Systems Installed in Yards in 1947

Railroad	Location	No. of Control Points	No. of Loud-Speakers
C. & O.	Richmond, Va.	3	28
	Russell, Ky.	5	18
	Stevens, Ky.	1	12
K. & I. T.	Louisville, Ky.	1	88
L. & N.	Louisville, Ky. (Strawberry Yd.)	2	14
	Evansville, Ind. (Howell Yd.)	1	1
	Ravenna, Ky.	2	10
M. P.	Osawatomie, Kan.	1	8
Southern	Atlanta Freighthouse, Ga.	1	20
	Simpson Yd., Jacksonville, Fla.	1	1
	Macon Yd. (Addition), Ga.	1	6
	West Yd., Hayne, S. C.	1	6
	East Yd., Inman, S. C.	1	4
	West Yd., Inman, S. C.	1	2
	Mascott, S. C.	1	2
	Andrews Yd., Columbia, S. C.	1	14
	Hamburg, S. C.	1	4
	Alexandria, Va.	1	12
A. G. S.	Birmingham Freighthouse, Ala.	1	16
	Chattanooga Freighthouse, Tenn.	1	17
	Birmingham Yd. (Addition), Ala.	1	14
C. N. O. & T. P.	Cincinnati Freighthouse, Ohio	1	18
N. O. & N. E.	Meridian Yd., Miss.	1	17
N. O. T.	Chalmette Dock, La.	1	18
U. P.	Pocatello, Idaho	2	86
Totals		34	436

Permanent Installations of Road Train Communication Placed in Service in 1947

Railroad	From	To	Miles of Road	No. of Locomotives	No. of Cabooses ot other Cars	No. of Fixed Wayside Stations	Space or Inductive Equipment	Frequency Allocated by F. C. C.	Manufacturer	Power Supply on Caboose
C. M. St. P. & P.	Milwaukee, Wis.	Kansas City, Mo.	508.7	3	2	..	Space	158.73 mc.	Bendix	Ax. Gen.
	Tacoma, Wash.	Harlowton, Mont.	873.0	3	2	..	Space	158.73 mc.	Bendix	Ax. Gen.
D. & R. G. W.	Denver, Colo.	Salt Lake City, Utah	830.0	11	11	1	Both	159.81 mc.	Aireon	Engine-driven Gen.
D. M. & I. R.	Duluth, Minn.	Hibbing, Minn.	135.0	10	18	7	Inductive	.....	Aireon	Diesel-A.C.
K. C. S.	Shreveport, La.	New Orleans, La.	312.0	9	..	6	Inductive	.....	.....	.....
Totals			2,658.7	36	33	14				

EQUIPMENT PRICES REPORTED IN 1947

Unit prices of typical freight and passenger cars and locomotives for the purchase of which Class I railroads arranged financing last year are shown in the three accompanying tables. The information was obtained entirely from Interstate Commerce Commission reports authorizng issues of notes or equipment trust certificates, proceeds from the sale of which were applied to the purchase of the equipment.

As noted in previous appearances of these tables, apparent substantial differences in prices of what seem to be similar types of equipment may be attributed to differences in the types of materials specified and the types and varieties of specialties. In addition, equipment ordered early in any given period of rising prices may cost less than similar equipment ordered late in the period. This was particularly true of 1947, a year in which material and labor costs continued to soar. Many of the I. C. C. reports indicated that the unit prices mentioned therein were based on manufacturing costs as of the date of the order and were subject to escalation.

Passenger-Train Car Prices

No. bought	Type	Construction	Price
8	14-room.-4 bedroom	Steel	$111,854
14	bedroom-double bedroom	Steel	120,000
6	bedroom-double bedroom	Steel	121,300
7	Sleeping	Steel	112,000
15	4 comp.-4 double bed.-2 drawing room	Steel	113,000
5	Dining	Steel	100,000
5	Kitchen-Dorm.	Steel	109,000
4	Baggage-Dorm.	Steel	80,000
21	Coach	Steel	89,500
1	Mail-Baggage	Steel	58,172
3	Coach	Steel	84,748
1	Coach-Lnge.-Buffet	Steel	97,332
1	Dining	Steel	125,570
7	Sleeping	Steel	112,290
1	Obs.-Lnge.-Sleep.	Steel	126,441
1	Tav.-Coach-Dorm.	Steel	126,360
1	Dining	Steel	149,880
1	Parlor-Bar-Lnge.	Steel	122,910
1	Parlor-Obs.	Steel	125,670
6	Mail-Express	Steel	48,000
6	Baggage-Dorm.	Steel	58,800
6	Combine	Steel	84,500
18	Coach	Steel	74,900
6	Dining	Steel	80,000
6	Lunch-Lounge	Steel	75,000
2	Dining-Lnge.	Steel	75,000
12	Sleeping	Steel	79,900

Locomotive Prices

No. bought	Type	Service	Horsepower or tractive force	Price
2	Diesel-Elec.	Frt.	1,350-hp.	$121,634
4	Diesel-Elec.	Frt.	1,500-hp.	156,244
2	Diesel-Elec.	Frt.	1,500-hp.	142,782
1	Diesel-Elec.	Sw.	660-hp.	78,799
4	Diesel-Elec.	Pass.	2,000-hp.	201,069
1	Gasoline	Frt.	.....	12,165
4	Diesel-Elec.	Frt.	4,500-hp.	418,000
10	2-8-4	Frt.	.....	227,146
3	2-8-4	Frt.	.....	226,253
5	2-8-4	Frt.	.....	235,672
4	2-8-4	Frt.	.....	235,673
2	Diesel-Elec.	Pass.	2,000-hp.	201,069
5	4-8-4	Pass.	.....	361,010
5	4-6-4	Pass.	.....	353,346
4	Diesel-Elec.	Sw.	1,000-hp.	89,650
4	Diesel-Elec.	Sw.	1,000-hp.	90,174
3	Diesel-Elec.	Sw.	1,500-hp.	125,692
14	Diesel-Elec.	Sw.	1,000-hp.	89,500
11	Diesel-Elec.	A-Unit Pass.	2,000-hp.	204,099
9	Diesel-Elec.	A-Unit Pass.	2,000-hp	217,241
3	Diesel-Elec.	B-Unit Pass.	2,000-hp.	197,394
4	Diesel-Elec.	Frt.	1,500-hp.	149,177
3	Diesel-Elec.	A-Unit Frt.	1,500-hp.	148,590
3	Diesel-Elec.	B-Unit	1,500-hp.	135,465
3	Diesel-Elec.	Sw.	1,000-hp.	94,911
2	Diesel-Elec.	Sw.	1,500-hp.	129,000
15	Diesel-Elec.	Frt.	6,000-hp.	612,777
6	Diesel-Elec.	Road	1,500-hp.	159,166
2	Diesel-Elec.	Pass.	3,000-hp.	293,742
11	Diesel-Elec.	A-Unit Pass.	2,000-hp.	204,099

Freight Car Prices

No. of cars	Type	Construction	Capacity	Price
350	gondola	steel	70-ton	$4,445
50	ballast	steel	70-ton	4,700
1,000	box	steel	50-ton	4,150
1,000	hopper	steel	50-ton	3,550
500	hopper	steel	70-ton	3,906
500	hopper	steel	70-ton	3,886
1,000	hopper	steel	50-ton	3,177
1,000	hopper	steel	50-ton	3,412
500	hopper	steel	50-ton	3,366
500	hopper	steel	50-ton	3,316
1,000	hopper	steel	50-ton	3,520
1,000	hopper	steel	50-ton	3,482
750	box	steel	50-ton	3,988
500	box	steel	50-ton	4,042
1,000	box	steel	50-ton	4,256
700	hopper	steel	70-ton	3,555
1,000	hopper	steel	70-ton	4,474
300	hopper	steel	70-ton	3,555
500	hopper	steel	50-ton	3,280
200	box	steel	50-ton	4,030
25	flat	steel	50-ton	4,120
1,000	box	steel	50-ton	3,970
500	gondola	steel	50-ton	4,451
600	box	steel	50-ton	4,220
500	box	steel	50-ton	4,596
500	box	steel	50-ton	4,380
300	hopper	steel	70-ton	4,154
1,000	hopper	steel	55-ton	3,611
1,000	hopper	steel	70-ton	4,473
300	hopper	steel	70-ton	3,555
1,500	box	steel	150-ton	4,178
1,500	gondola	composite	50-ton	1,500
250	box	steel	50-ton	4,030
1,000	hopper	steel	70-ton	3,941
2,500	box	steel	50-ton	4,000
500	hopper	steel	50-ton	3,280
200	box	steel	50-ton	4,030
1,000	hopper	steel	50-ton	3,550
100	hopper	steel	70-ton	4,634
600	box	steel	50-ton	4,220
250	auto-box	steel	50-ton	4,160
500	auto-box*	steel	40-ton	4,051

* Including loading devices.

Revisions of alinement and grade accounted for a large percentage of the construction work in progress during 1947

LOCOMOTIVES ORDERED IN 1947

By **FRED C. MILES**
Associate Editor

Because the information was not available from the usual sources at the time of going to press, RAILWAY AGE is unable at this time to publish the production figures usually summarized in an accompanying table. Efforts to obtain the data are continuing and if they are made available they will be presented in a subsequent issue.

Locomotives of all types ordered in this country last year totaled 2,779, including 624 for export, according to reports received by *Railway Age*. Of the 2,155 locomotives ordered for domestic use, 1 was electric, 2,075 were Diesel-electric and 79 were steam. American railroads placed orders for 75 steam (including 10 ordered from the shops of the Norfolk & Western) and 1,950 Diesel-electric locomotives. Domestic industrial concerns ordered 1 electric, 4 steam and 125 Diesel-electric locomotives. Orders placed for export included 127 steam, 486 Diesel-electric, 5 Diesel-mechanical, 2 gas-electric and 4 electric locomotives.

The detailed list of orders was compiled from reports to *Railway Age* by railroads, private car lines, industrial concerns and contract locomotive builders and is believed to be reasonably complete.

Locomotives Ordered, 1929-1947

Year	Steam	Diesel	Electric	Total	U. S. Export
1947	79	2,075	1	2,155	624
1946	55	989	8	1,052	629
1945	148	691	6	845	1,895
1944	74	680	3	757	134
1943	413	635	0	1,048	60
1942	363	894	12	1,269	32
1941	302	1,104	38	1,444	85
1940	207	492	13	712	85
1939	119	249	32	400	40
1938	36	160	29	225	24
1937	173	145	36	354	56
1936	435	77	24	536	22
1935	30	60	7	97	15
1934	72	37	76	185	17
1933	17	25	0	42	7
1932	5	7	0	12	1
1931	62	21	91	174	28
1930	382	18	21	421	20
1929	1,055	80	95	1,230	106

Note: U. S. Government purchases excluded for years 1942-1944.

Domestic Diesel Locomotive Orders by Horsepower and Purchaser

	Railroads		Private Car Lines and Others		Total	
Horsepower	1947	1946	1947	1946	1947	1946
8,000	0	1	0	0	0	1
6,000	144	101	0	0	144	101
5,400	0	0	0	0	0	0
4,500	38	81	0	0	38	81
4,050	0	0	0	0	0	0
4,000	17	9	0	0	17	9
3,000	45	41	0	0	45	41
2,700	0	0	0	0	0	0
2,000	178	60	1	0	179	60
1,500	628	227	3	0	631	227
1,350	0	0	0	0	0	0
1,000	684	221	18	3	702	224
660-600	181	62	24	14	205	76
Under 600	35	35	79	134	114	169
Total	1,950	838	125	151	2,075	989

STEAM LOCOMOTIVES ORDERED IN 1947

For Service in the United States

Purchaser	No.	Type	Service	Weight	Tractive Force	Cylinders	Date of Order	Date of Delivery	Builder
Alabama Power Co.	1	0-4-0	Switching	100,000	15,300	22 x 18	February	March '48	H. K. Porter
Celanese Corp.	1	0-4-0	Switching	78,000	15,800	20 x 18	February	December	H. K. Porter
Chesapeake & Ohio	5	4-8-4	Passenger	485,000	81,800*	27½ x 30	February	March '48	Lima-Hamilton
	5	4-6-4	Passenger	430,500	64,700	25 x 30	February	1948	Baldwin
	3†	0-6-0	Switching	160,000	29,400	24 x 30	October	May '48	H. K. Porter
	15	2-6-6-6	.....	.....	.....	.....	December	July '48	Lima-Hamilton
	30	0-8-0	Switching	.....	.....	.....	December	1948	Baldwin
Norfolk & Western	5	2-8-8-2	Freight	582,900	126,838	25 x 32	June	1948	R. R. Shops
	5	2-8-8-2	Freight	582,900	126,838	39 x 32	June	1948	R. R. Shops
Pennsylvania Power & Light Co.	2	0-6-0	Switching	150,000	32,000	28 x 24	October	April '48	H. K. Porter
Pittsburgh & Lake Erie	7	4-8-2	Freight	482,000	67,125	26 x 32	June	March '48	American

Export

Adm. de Porto de Rio de Janeiro	2	0-6-0	Switching	53,000	10,680	12 x 16	August	June '48	H. K. Porter
Argentine State Railways	30	4-8-2	Freight	180,000	31,800	19¾ x 24	February	.....	Baldwin
	15	4-6-2	.....	180,000	29,330	20 x 26	February	.....	Lima-Hamilton
Estrada de Ferrode Goiaz	1	4-6-0	Freight	82,600	15,100	14 x 20	November	.....	Baldwin
Franco Ethiopian R. R.	6	2-8-2-8	Passenger	125,000	.....	16 x 24	January	October	Davenport-Bessler
India Supply Mission	16	4-6-2	Passenger	217,504	30,600	20¼ x 28	January	3rd qtr.	Baldwin
For Indian State Rys.	33	2-8-2	Freight	123,000	20,100	16 x 24	November	.....	Baldwin
Maritrop Trading Corp.	8	2-8-2	Freight	147,000	27,625	18 x 22	June	.....	Baldwin
Mozambique Railways	10	2-8-2	Freight	149,000	29,200	19 x 24	July	.....	Baldwin
Oy Exian Ab	1	0-4-0	Switching	42,000	7,000	15 x 14	June	March '48	H. K. Porter
Petroleos Mexicanos	1	0-4-0	Switching	83,000	17,405	14 x 22	February	December	H. K. Porter
Republic of Colombia	3	2-8-0	Switching	98,000	22,294	17 x 20	February	September	H. K. Porter
Usina Agua Branca	1	2-6-2	Switching	55,000	9,195	12 x 16	February	November	H. K. Porter

Canada

Canadian Pacific	6	2-10-4	Road	450,000	89,200*	25 x 32	October	1948	Montreal Loco.
	30	4-6-2	Road	230,000	34,000	20 x 28	August	1948	Canadian Loco.
	10	4-6-2	Road	323,500	45,000	22 x 30	August	1948	Montreal Loco.
	10	2-8-2	Freight	338,000	57,500	22 x 32	September	1948	Montreal Loco.
Pacific Great Eastern	2	2-8-2	Road	220,000	40,000	20 x 30	March	October	Canadian Loco.

* With booster. † Fireless steam locomotives.

DIESEL, ELECTRIC, AND OTHER INTERNAL-COMBUSTION LOCOMOTIVES

Railroad Orders—For Service in the United States

Purchaser	No.	Wheel Arrangement	Service	Type	Weight	Horse-Power	Date of Order	Date of Delivery	Builder Locomotive Builder Electrical Equipment Engine Builder
Akron & Barberton Belt	1	B-B-	Switching	Diesel-Elec.	240,000	1,000	June	.....	Baldwin-West.
Akron, Canton & Youngstown	4	B-B	Rd.-Sw.	Diesel-Elec.	250,000	2,000	August	Jan. '48	Fairbanks, Mores-West.
Alabama, Tennessee & Northern	2	B-B	Rd.-Sw.	Diesel-Elec.	240,000	1,000	April	September	American-G. E.
Alton & Southern	8	B-B	Rd.-Sw.	Diesel-Elec.	240,000	1,500	February	1947	American-G. E.
	2	B-B	Rd.-Sw.	Diesel-Elec.	240,000	1,500	October	1948	American-G. E.
Angelina & Neches River	1	B-B	Switching	Diesel-Elec.	198,000	600	June	.....	Electro-Motive
Apalachicola Northern	3	B-B	Rd.-Sw.	Diesel-Elec.	248,000	1,000	January	October	Electro-Motive
Arcade & Attica	1	B-B	Rd.-Sw.	Diesel-Elec.	88,000	380	April	April	G. E.-Cater.
Atchison, Topeka & Santa Fe	8	4(B-B)	Passenger	Diesel-Elec.	920,000	6,000	May	1948	Electro-Motive
	6	B-B	Switching	Diesel-Elec.	240,000	1,000	May	1948	Baldwin-West.
	1	C-C	Transfer	Diesel-Elec.	360,000	2,000	May	2nd qtr. '48	Baldwin-West.
	2	B-B	Switching	Diesel-Elec.	240,000	1,000	May	Feb. '48	Fairbanks, Morse-West.
	4	2(A1A-A1A)	Passenger	Diesel-Elec.	.....	4,000	May	1948	American-G. E.
	3	B-B	Switching	Diesel-Elec.	.....	1,000	May	Jan. '48	American-G. E.
	4	3(A1A-A1A)	Passenger	Diesel-Elec.	.....	6,000	November	3rd qtr. '48	American-G. E.
	4	B-B	Switching	Diesel-Elec.	.....	1,000	November	1948–49	American-G. E.
	13	B-B	Switching	Diesel-Elec.	240,000	1,000	November	1948	Baldwin-West.
	7	4(B-B)	Passenger	Diesel-Elec.	920,000	6,000	November	1948–49	Electro-Motive
Atlanta & St. Andrews Bay	1	B-B	Passenger	Diesel-Elec.	226,040	1,500	February	June	Electro-Motive
	1	B-B	Road	Diesel-Elec.	226,100	1,000	February	November	American-G. E.
Baltimore & Ohio	40	B-B	Freight	Diesel-Elec.	239,000	1,500	February	March '48	Electro-Motive
	20	B-B	Freight	Diesel-Elec.	239,000	1,500	November	May '48	Electro-Motive
	40	B-B	Switching	Diesel-Elec.	248,000	1,000	November	Sept. '48	Electro-Motive
	25	B-B	Switching	Diesel-Elec.	230,000	1,000	November	Dec. '48	American-G. E.
	25	B-B	Switching	Diesel-Elec.	240,000	1,000	November	Oct. '48	Baldwin-West.
	10	B-B	Switching	Diesel-Elec.	240,000	1,000	November	Dec. '48	Fairbanks, Morse-West.
Bangor & Aroostook	2	B-B	Passenger	Diesel-Elec.	228,000	1,500	March	.....	Electro-Motive
	4	B-B	Freight	Diesel-Elec.	228,000	1,500	March	October	Electro-Motive
	2	B-B	Freight	Diesel-Elec.	228,000	1,500	March	.....	Electro-Motive
	2	B-B	Switching	Diesel-Elec.	221,000	1,500	March	October	Electro-Motive
	2	B-B	Switching	Diesel-Elec.	221,000	1,500	March	.....	Electro-Motive
Barre & Chelsea	1	B-B	Rd.-Sw.	Diesel-Elec.	140,000	600	January	January	G. E.-Cooper-Bessemer
	2	B-B	Rd.-Sw.	Diesel-Elec.	140,000	600	January	September	G. E.-Cooper-Bessemer
Belt of Chicago	1	B-B	Switching	Diesel-Elec.	230,000	1,000	Dec. '46*	March	American-G. E.
	1	B-B	Switching	Diesel-Elec.	240,000	1,000	January	July	Baldwin-West.
Boston & Maine	4	A1A-A1A	Passenger	Diesel-Elec.	315,000	2,000	June	June '48	Electro-Motive
	2	2(B-B)	Freight	Diesel-Elec.	460,000	3,000	June	Aug. '48	Electro-Motive
	1	B-B	Switching	Diesel-Elec.	88,000	380	June	November	General Electric-Cater.
	4	B-B	Switching	Diesel-Elec.	199,000	660	June	3rd qtr. '48	American-G. E.
	1	B-B	Switching	Diesel-Elec.	230,000	1,500	October	Feb. '49	American-G. E.
Central of Georgia	1	B-B	Sw.	Diesel-Elec.	230,000	1,000	April	April '48	American-G. E.
	2	B-B	Passenger	Diesel-Elec.	318,144	2,000	April	May '48	Electro-Motive
	4	B-B	Freight	Diesel-Elec.	230,000	1,500	April	May '48	Electro-Motive
Chicago & Eastern Illinois	6	B-B	Passenger	Diesel-Elec.	230,000	1,500	April	Feb. '48	Electro-Motive
Chicago & North Western	5	B-B	Switching	Diesel-Elec.	240,000	1,000	April	1947–48	Fairbanks, Morse-West.
	6	B-B	Switching	Diesel-Elec.	199,000	660	May	1st qtr. '48	American-G. E.
	3	B-B	Switching	Diesel-Elec.	300,000	1,500	May	1947–48	Baldwin-West.
	6	B-B	Freight	Diesel-Elec.	230,000	1,500	May	December	Electro-Motive
	1	B-B	Switching	Diesel-Elec.	230,000	1,000	May	September	American-G. E.
	2	B-B	Freight	Diesel-Elec.	229,000	1,500	February	March	Electro-Motive
	1	B-B	Switching	Diesel-Elec.	250,000	1,500	November	Jan. '48	American-G. E.
	15	B-B	Freight	Diesel-Elec.	230,000	1,500	November	March '49	Electro-Motive
	6	1B-1B	Passenger	Diesel-Elec.	314,400	2,000	November	Jan. '49	Electro-Motive
Chicago & Western Indiana	2	B-B	Switching	Diesel-Elec.	248,920	1,000	July	November	Electro-Motive
Chicago, Burlington & Quincy	4	1B-1B	Passenger	Diesel-Elec.	327,700	2,000	November	.....	Electro-Motive
	1	2(1B-1B)	Passenger	Diesel-Elec.	655,400	4,000	November	.....	Electro-Motive
	1	3(B-B)	Freight	Diesel-Elec.	695,640	4,500	November	.....	Electro-Motive
	15	4(B-B)	Freight	Diesel-Elec.	921,680	6,000	November	.....	Electro-Motive
Chicago Great Western	6	3(B-B)	Freight	Diesel-Elec.	690,000	4,500	Dec. '46*	October	Electro-Motive
	3	B-B	Switching	Diesel-Elec.	230,000	1,000	January	1947	American-G. E.
	9	B-B	Switching	Diesel-Elec.	248,000	1,000	May	.....	Electro-Motive
	5	B-B	Switching	Diesel-Elec.	199,000	660	May	.....	American-G. E.
	6	3(B-B)	Freight	Diesel-Elec.	690,000	4,500	August	.....	Electro-Motive
	3	2(B-B)	Freight	Diesel-Elec.	460,000	3,000	August	.....	Electro-Motive
	3	B-B	Passenger	Diesel-Elec.	230,000	1,500	August	.....	Electro-Motive
	5	B-B	Switching	Diesel-Elec.	248,000	1,000	December	.....	Electro-Motive
	4	2(B-B)	Passenger	Diesel-Elec.	460,000	3,000	December	.....	Electro-Motive
	9	2(B-B)	Rd.-Sw.	Diesel-Elec.	500,000	2,000	December	.....	Electro-Motive
	8	B-B	Switching	Diesel-Elec.	230,000	1,500	December	.....	American-G. E.
Chicago, Indianapolis & Louisville	7	B-B	Rd.-Sw.	Diesel-Elec.	240,000	1,500	March	1947	American-G.E.
	2	B-B	Rd.-Sw.	Diesel-Elec.	240,000	1,500	March	1947	Fairbanks, Morse-West.
	8	B-B	Rd.-Sw.	Diesel-Elec.	230,000	1,500	March	1st qtr. '48	Electro-Motive
	1	B-B	Freight	Diesel-Elec.	230,000	1,500	February	October	Electro-Motive
Chicago, Milwaukee, St. Paul & Pacific	4	A1A-A1A	Passenger	Diesel-Elec.	324,000	2,000	March	September	Fairbanks, Morse-G. E.
	2	B-B	Switching	Diesel-Elec.	.....	1,000	April	December	American-G. E.
	3	B-B	Switching	Diesel-Elec.	248,000	1,000	April	November	Electro-Motive
	1	A1A-A1A	Passenger	Diesel-Elec.	324,000	2,000	September	April '48	Fairbanks, Morse-G. E.
Chicago, Rock Island & Pacific	2	B-B	Passenger	Diesel-Elec.	250,000	1,500	May	4th qtr. '48	Fairbanks, Morse-West.
Chicago, St. Paul, Minneapolis & Omaha	5	B-B	Switching	Diesel-Elec.	240,000	1,000	April	1947–48	Fairbanks, Morse-West.
	1	B-B	Switching	Diesel-Elec.	199,000	660	May	2nd qtr. '48	American-G. E.
Colorado & Southern	3	B-B	Switching	Diesel-Elec.	247,700	1,000	January	October	Electro-Motive
Delaware, Lackawanna & Western	3	3(B-B)	Passenger	Diesel-Elec.	735,000	4,500	June '46*	December'47	Electro-Motive
	6	2(B-B)	Freight	Diesel-Elec.	461,600	3,000	April	March '48	Electro-Motive
	2	B-B	Switching	Diesel-Elec.	247,000	1,000	May	May '48	American-G. E.
	1	3(B-B)	Freight	Diesel-Elec.	692,500	4,500	June	Jan. '48	Electro-Motive
Delaware & Hudson	6	B-B	Switching	Diesel-Elec.	230,000	1,000	August	1947–48	American-G. E.
	2	B-B	Rd.-Sw.	Diesel-Elec.	243,250	1,500	August	Jan. '48	American-G. E.
	2	B-B	Rd.-Sw.	Diesel-Elec.	232,750	1,500	August	Jan. '48	American-G. E.
	1	B-B	Rd.-Sw.	Diesel-Elec.	230,000	1,500	August	Jan. '48	American-G. E.
Denver & Rio Grande Western	3	B-B	Switching	Diesel-Elec.	240,000	1,500	August	Feb. '48	Fairbanks, Morse-West.
	4	B-B	Switching	Diesel-Elec.	240,000	1,000	August	July '48	Fairbanks, Morse-West.
	3	4(B-B)	Switching	Diesel-Elec.	965,000	6,000	October	Oct. '48	Electro-Motive
Des Moines & Central Iowa	3	B-B	Rd.-Sw.	Diesel-Elec.	140,000	600	May	.....	G. E.-Cooper-Bessemer
Detroit & Mackinac	1	B B	Rd. Sw.	Diesel Elec.	.....	1,500	March	1st qtr. '48	American G. E.
Detroit Terminal	9	B-B	Switching	Diesel-Elec.	243,730	1,000	February	October	Electro-Motive
Detroit, Toledo & Ironton	7	B-B	Switching	Diesel-Elec.	241,000	1,000	November	Sept. '48	Electro-Motive
East St. Louis Junction	3	B-B	Rd.-Sw.	Diesel-Elec.	140,000	600	November	.....	G. E.-Cooper-Bessemer

Purchaser	No.	Wheel Arrangement	Service	Type	Weight	Horse-Power	Date of Order	Date of Delivery	Builder Locomotive Builder Electrical Equipment Engine Builder
Elgin, Joliet & Eastern	15	B-B	Switching	Diesel-Elec.	248,070	1,000	August	Oct. & Nov.	Electro-Motive
	25	B-B	Freight	Diesel-Elec.	360,000	2,000	August	1948	Baldwin-West.
	1	B-B	Freight	Diesel-Elec.	252,000	1,500	August	1948	American-G. E.
Erie	5	B-B	Switching	Diesel-Elec.	201,035	660	January	Fall '47	American-G. E.
	1	B-B	Switching	Diesel-Elec.	202,800	660	January	November	Baldwin-West.
	10	B-B	Switching	Diesel-Elec.	248,000	1,000	January	Jan. '48	Electro-Motive
	6	B-B	Switching	Diesel-Elec.	230,000	1,000	January	1947	American-G. E.
	3	B-B	Switching	Diesel-Elec.	240,000	1,000	January	Jan. '48	Baldwin-West.
	9	4(B-B)	Freight	Diesel-Elec.	906,000	6,000	January	1947–48	American-G. E.
	1	B-B	Switching	Diesel-Elec.	198,000	600	September	3rd qtr. '48	Electro-Motive
	3	B-B	Switching	Diesel-Elec.	248,000	1,000	September	3rd qtr. '48	Electro-Motive
	5	B-B	Switching	Diesel-Elec.	230,000	1,000	September	3rd qtr. '48	American-G. E.
	2	B-B	Switching	Diesel-Elec.	240,000	1,000	September	June '48	Baldwin-West.
Escanaba & Lake Superior	1	B-B	Switching	Diesel-Elec.	198,500	660	April	December	Baldwin-West.
Georgia	1	B-B	Switching	Diesel-Elec.	241,000	1,000	September	April '48	Electro-Motive
Georgia Northern	1	B-B	Freight	Diesel-Elec.	200,000	660	June	December	Baldwin-West.
Grafton & Upton	1	B	Switching	Diesel-Elec.	50,000	150	September	.....	G. E.-Cummins
Great Northern	9	3(B-B)	Passenger	Diesel-Elec.	741,600	4,500	Dec. '46*	December	Electro-Motive
Green Bay & Western	3	B-B	Freight	Diesel-Elec.	230,000	1,500	February	.....	American-G. E.
Gulf Coast Lines	6	2(B-B)	Freight	Diesel-Elec.	460,000	3,000	May	July '48	Electro-Motive
High Point-Thomasville & Denton	3	B-B	Rd.-Sw.	Diesel-Elec.	140,000	600	April	.....	G. E.-Cooper—Bessemer
Hoboken Mfrs	2	B-B	Rd.-Sw.	Diesel-Elec.	88,000	380	August	November	G. E.-Cater.
Illinois Central	3	A1A-A1A	Passenger	Diesel-Elec.	315,000	2,000	May	1947–48	Electro-Motive
	1	AIA-A1A	Passenger	Diesel-Elec.	305,000	2,000	May	June '48	Electro-Motive
	1	B-B	Rd.-Sw.	Diesel-Elec.	88,000	380	June	November	G. E.-Cater.
Illinois Terminal	9	B-B	Switching	Diesel-Elec.	.....	1,000	April	1st qtr. '48	American-G. E.
International-Great Northern	4	3(B-B)	Freight	Diesel-Elec.	690,000	4,500	May	July	Electro-Motive
Jacksonville Terminal	3	B-B	Switching	Diesel-Elec.	241,000	1,000	March	July	Electro-Motive
Kansas City Southern	4	4(B-B)	Freight	Diesel-Elec.	900,000	6,000	June	2nd qtr. '48	Electro-Motive
	10	B-B	Switching	Diesel-Elec.	248,000	1,000	November	2nd qtr. '48	Electro-Motive
Kentucky & Indiana Terminal	5	B-B	Switching	Diesel-Elec.	240,700	1,000	May	1947–48	Fairbanks, Morse-West.
Lake Superior Terminal & Transfer	3	B-B	Switching	Diesel-Elec.	250,000	1,000	July	Jan. '48	Electro-Motive
Lake Terminal	7	B-B	Switching	Diesel-Elec.	248,000	1,000	April	.....	Electro-Motive
Laurinburg & Southern	1	B-B	Rd.-Sw.	Diesel-Elec.	140,000	600	January	September	G. E.-Cooper-Bessemer
Lehigh & New England	6	B-B	Freight	Diesel-Elec.	230,000	1,500	October	2nd qtr. '48	American-G. E.
	1	B-B	Switching	Diesel-Elec.	230,000	1,000	October	July '48	American -G. E.
	4	B-B	Freight	Diesel-Elec.	230,000	1,500	October	3rd qtr. '48	American-G. E.
Lehigh Valley	7	2(AIA-AIA)	Passenger	Diesel-Elec.	612,000	4,000	October	1948	American-G. E.
Long Island	4	B-B	Switching	Diesel-Elec.	197,600	600	July	June '48	Baldwin-West.
	1	B-B	Switching	Diesel-Elec.	240,000	1,000	July	April '48	Baldwin-West.
	18	B-B	Switching	Diesel-Elec.	199,900	600	October	May '49	American-G. E.
	15	B-B	Switching	Diesel-Elec.	230,000	1,000	October	Feb. '49	American-G. E.
Louisiana & Arkansas	1	2(AIA-AIA)	Freight	Diesel-Elec.	653,000	4,000	March	July	Fairbanks, Morse-G. E.
	1	AIA	Freight	Diesel-Elec.	328,000	2,000	November	2nd qtr. '48	Fairbanks, Morse-G. E.
Lowville & Beaver	1	B-B	Rd.-Sw.	Diesel-Elec.	88,000	380	March	April	G. E.-Cummins
Maine Central	6	B-B	Freight	Diesel-Elec.	230,000	1,500	November	Sept. '48	Electro-Motive
	5	B-B	Switching	Diesel-Elec.	230,000	1,500	November	Dec. '48	American-G. E.
	3	AIA	Passenger	Diesel-Elec.	315,000	2,000	November	June '48	Electro-Motive
	4	B-B	Switching	Diesel-Elec.	199,000	660	November	Dec. '49	American-G. E.
	3	B-B	Switching	Diesel-Elec.	230,000	1,000	November	Jan. '49	American-G. E.
Marianna & Blountstown	1	B-B	Rd.-Sw.	Diesel-Elec.	140,000	600	March	September	G. E.-Cooper-Bessemer
Midland Valley	1	B-B	Switching	Diesel-Elec.	248,000	1,000	November	.....	Electro-Motive
Minneapolis, St. Paul & Sault Ste. Marie	5	2(B-B)	Freight	Diesel-Elec.	450,420	3,000	June	1947–48	Electro-Motive
	5	2(B-B)	Freight	Diesel-Elec.	.....	3,000	June	2nd qtr. '48	American-G. E.
	8	B-B	Rd.-Sw.	Diesel-Elec.	250,000	1,500	February	1947	Baldwin-West.
Minneapolis & St. Louis	3	2(B-B)	Freight	Diesel-Elec.	460,000	3,000	February	March '48	Electro-Motive
	3	B-B	Switching	Diesel-Elec.	243,000	1,000	June	Sept. '48	American-G. E.
Missouri Pacific	3	B-B	Switching	Diesel-Elec.	240,000	1,000	May	1st qtr. '48	Baldwin-West.
	10	3(B-B)	Freight	Diesel-Elec.	683,000	4,500	May	Mar.-Apr.'48	American-G. E.
	4	3(B-B)	Freight	Diesel-Elec.	750,000	4,500	May	Apr.-July'48	Baldwin-West.
	6	3(B-B)	Freight	Diesel-Elec.	690,000	4,500	May	July '48	Electro-Motive
	4	2(B-B)	Freight	Diesel-Elec.	460,000	3,000	May	July '48	Electro-Motive
	4	2(AIA-AIA)	Passenger	Diesel-Elec.	620,000	4,000	May	June '48	Electro-Motive
	8	B-B	Rd.-Sw.	Diesel-Elec.	210,000	1,500	May	June-July'48	Electro-Motive
Monongahela Connecting	2	B-B	Switching	Diesel-Elec.	220,500	1,000	April	October	American-G. E.
New York Central	2	B-B	Switching	Diesel-Elec.	230,000	1,000	Dec. '46*	Dec. '46–Jan. '47	American-G. E.
	12	AIA-AIA	Passenger	Diesel-Elec.	324,000	2,000	February	Feb. '48	Elocto-Metive
	18	B-B	Freight	Diesel-Elec.	230,000	1,500	February	March '48	Electro-Motive
	6	B-B	Freight	Diesel-Elec.	250,000	1,500	March	March '48	Baldwin-West.
	2	B-B	Rd.-Sw.	Diesel-Elec.	240,000	1,500	March	Feb. '48	Baldwin-West.
	2	AIA-AIA	Freight	Diesel-Elec.	347,000	2,000	March	October	Fairbanks, Morse-G. E.
	4	AIA-AIA	Passenger	Diesel-Elec.	306,000	2,000	February	December	American-G. E.
	15	B-B	Freight	Diesel-Elec.	236,000	1,500	February	Feb. '48	American-G. E.
	9	B-B	Rd.-Sw.	Diesel-Elec.	240,000	1,000	March	1st qtr. '48	American-G. E.
	2	B-B	Rd.-Sw.	Diesel-Elec.	230,000	1,500	March	Feb. '48	American-G. E.
	7	B-B	Rd.-Sw.	Diesel-Elec.	230,000	1,500	November	1948–49	American-G. E.
	25	.....	Switching	Diesel Elec.	.....	600	December	.....	Electro Motive
	59	.....	Switching	Diesel Elec.	.....	1,000	December	.....	Electro Motive
	13	.....	Freight	Diesel Elec.	.....	1,500	December	.....	Electro Motive
	6	.....	Passenger	Diesel Elec.	.....	2,000	December	.....	Electro Motive
	4	.....	Passenger	Diesel Elec.	.....	2,000	December	.....	American G. E.
	24	.....	Freight	Diesel Elec.	.....	1,500	December	.....	American G. E.
	7	.....	Rd. Sw.	Diesel Elec.	.....	1,500	December	.....	American G. E.
	6	.....	Passenger	Diesel Elec.	.....	2,000	December	.....	Fairbanks, Morse
	5	.....	Transfer	Diesel Elec.	.....	2,000	December	.....	Fairbanks, Morse
	6	.....	Freight	Diesel Elec.	.....	2,000	December	.....	Fairbanks, Morse
New York, Chicago & St. Louis	18	B-B	Switching	Diesel-Elec.	220,500	1,000	January	1947	American-G. E.
	2	B-B	Switching	Diesel-Elec.	232,500	1,000	January	October	Baldwin-West.
	6	B-B	Switching	Diesel-Elec.	240,800	1,000	January	October	Electro-Motive
	1	B-B	Switching	Diesel-Elec.	220,500	1,000	January	October	American-G. E.
	6	B-B	Switching	Diesel-Elec.	240,800	1,000	January	Feb. '48	Electro-Motive
	11	AIA-AIA	Passenger	Diesel-Elec.	285,000	2,000	July	1947–48	American-G. E.
New York, New Haven & Hartford	10	B-B	Rd.-Sw.	Diesel-Elec.	228,500	1,500	May	1947	American-G. E.
	10	B-B	Rd.-Sw.	Diesel-Elec.	222,500	1,000	May	Mar.-Apr.'48	American-G. E.
	13	B-B	Switching	Diesel-Elec.	189,400	660	May	1947–48	American-G. E.
	2	B-B	Switching	Diesel-Elec.	84,100	380	May	November	General Electric-Cater.
New York, Ontario & Western	3	B-B	Road	Diesel-Elec.	230,000	1,500	July	1st half '48	Electro-Motive
	2	2(B-B)	Freight	Diesel-Elec.	460,000	3,000	July	1st half '48	Electro-Motive
New York, Susquehanna & Western	4	B-B	Rd.-Sw.	Diesel-Elec.	243,000	1,000	July	October	American-G. E.
Norfolk Southern	10	AIA-AIA	Rd.-Sw.	Diesel-Elec.	280,000	1,500	March	1947–48	Baldwin-West.
Northern Pacific	1	C-C	Rd.-Sw.	Diesel-Elec.	300,000	1,500	October	June '48	Baldwin-West.
	2	B-B	Rd.-Sw.	Diesel-Elec.	240,000	1,500	November	Aug. '48	Baldwin-West.
	2	4(B-B)	Freight	Diesel-Elec.	.....	6,000	December	1948	Electro-Motive

Purchaser	No.	Wheel Arrangement	Service	Type	Weight	Horse-Power	Date of Order	Date of Delivery	Builder Locomotive Builder Electrical Equipment Engine Builder
Northern Pacific Terminal	2	B-B	Switching	Diesel-Elec.	.....	1,000	August	.....	American-G. E.
Oakland Terminal	1	B-B	Switching	Diesel-Elec.	240,000	1,000	October	.....	Baldwin-West.
Patapsco & Back Rivers	5	B-B	Switching	Diesel-Elec.	240,000	1,000	April	.....	Baldwin-West.
Pennsylvania	2	B-B	Switching	Diesel-Elec.	194,000	600	Dec. '46*	September	Electro-Motive
	3	B-B	Switching	Diesel-Elec.	243,550	1,000	Dec. '46*	October	Electro-Motive
	9	3(AIA-AIA)	Passenger	Diesel-Elec.	1,125,000	6,000	January	May '48	Baldwin-West.
	5	3(AIA-AIA)	Passenger	Diesel-Elec.	931,000	6,000	January	December	American-G. E.
	5	3(AIA-AIA)	Passenger	Diesel-Elec.	945,000	6,000	January	Jan. '48	Electro-Motive
	6	4(B-B)	Freight	Diesel-Elec.	930,000	6,000	January	April '48	Electro-Motive
	1	AIA-AIA	Passenger	Diesel-Elec.	306,100	2,000	January	April	Electro-Motive
	8	3(AIA-AIA)	Freight	Diesel-Elec.	1,032,000	6,000	April	Feb. '48	Fairbanks, Morse-G. E.
	6	4(B-B)	Freight	Diesel-Elec.	930,000	6,000	June	July '48	Electro-Motive
	7	B-B	Switching	Diesel-Elec.	230,000	1,000	June	Aug. '48	American-G. E.
	20	B-B	Switching	Diesel-Elec.	240,000	1,000	June	June '48	Baldwin-West.
	10	B-B	Switching	Diesel-Elec.	197,600	600	June	April '48	Baldwin-West.
	13	B-B	Switching	Diesel-Elec.	194,000	600	June	April '48	Electro-Motive
	2	3(AIA-AIA)	Freight	Diesel-Elec.	930,000	6,000	July	June '48	American-G. E.
	3	3(AIA-AIA)	Freight	Diesel-Elec.	1,120,000	6,000	July	July '48	Baldwin-West.
	4	3(AIA-AIA)	Freight	Diesel-Elec.	1,032,000	6,000	July	May '48	Fairbanks, Morse-G. E.
	6	4(B-B)	Freight	Diesel-Elec.	930,000	6,000	July	Aug. '48	Electro-Motive
	4	B-B	Switching	Diesel-Elec.	199,900	600	October	March '49	American-G. E.
	6	B-B	Switching	Diesel-Elec.	230,000	1,000	October	Dec. '48	American-G. E.
	12	B-B	Switching	Diesel-Elec.	197,600	600	October	Sept. '48	Baldwin-West.
	15	B-B	Switching	Diesel-Elec.	240,000	1,000	October	Sept. '48	Baldwin-West.
	18	B-B	Switching	Diesel-Elec.	194,000	600	October	Sept. '48	Electro-Motive
	22	B-B	Switching	Diesel-Elec.	243,550	1,000	October	Nov. '48	Electro-Motive
	23	B-B	Switching	Diesel-Elec.	240,000	1,000	October	Sept. '48	Fairbanks, Morse-West.
	25	B-B	Switching	Diesel-Elec.	88,550	380	November	Sept. '48	General-Elec.-Cater.
Peoria & Pekin Union	2	B-B	Switching	Diesel-Elec.	248,000	1,000	May	October	Electro-Motive
	2	B-B	Switching	Diesel-Elec.	248,000	1,000	November	.....	Electro-Motive
Philadelphia, Bethlehem & New England	2	B-B	Switching	Diesel-Elec.	248,000	1,000	February	.....	Electro-Motive
Pittsburgh & Lake Erie	10	B-B	Switching	Diesel-Elec.	250,000	1,000	May	December	Electro-Motive
	2	B-B	Switching	Diesel-Elec.	240,000	1,000	May	Feb. '48	Fairbanks, Morse-West.
	3	B-B	Switching	Diesel-Elec.	230,000	1,000	May	May '48	American-G.E.
Pittsburgh & West Virginia	2	B-B	Freight	Diesel-Elec.	253,500	2,000	September	October	Fairbanks, Morse-West.
Portland Terminal	2	B-B	Switching	Diesel-Elec.	199,000	660	October	July '49	American-G. E.
	1	B-B	Switching	Diesel-Elec.	230,000	1,000	October	Jan. '49	American-G. E.
Reading	3	4(B-B)	Freight	Diesel-Elec.	920,000	6,000	September	3rd qtr. '48	Electro-Motive
	3	4(B-B)	Freight	Diesel-Elec.	906,000	6,000	September	2nd-3rd qtrs. '48	American-G. E.
Richmond, Fredericksburg & Potomac	10	B-B	Switching	Diesel-Elec.	230,000	1,000	July	3rd qtr. '48	American-G. E.
St. Johnsburg & Lake Champlain	5	B-B	Rd.-Sw.	Diesel-Elec.	140,000	600	May	.....	G. E.-Cooper-Bessemer
St. Louis, Brownsville & Mexico	12	B-B	Freight	Diesel-Elec.	230,000	1,500	May	.....	Electro-Motive
St. Louis-San Francisco	9	4(B-B)	Freight	Diesel-Elec.	920,000	6,000	May	.....	Electro-Motive
	4	B-B	Switching	Diesel-Elec.	248,000	1,000	May	.....	Electro-Motive
	6	B-B	Switching	Diesel-Elec.	248,000	1,000	November	.....	Electro-Motive
	6	B-B	Switching	Diesel-Elec.	240,000	1,000	May	1st qtr. '48	Fairbanks, Morse-West.
	4	B-B	Switching	Diesel-Elec.	240,000	1,000	November	.....	Fairbanks, Morse-West
	6	3(B-B)	Freight	Diesel-Elec.	.....	4,500	.....	.....	American-G. E.
	2	B-B	Switching	Diesel-Elec.	.....	1,000	.....	.....	American-G. E.
St. Louis San Francisco	12	.....	Freight	Diesel Elec.	.....	1,500	December	.....	Electro Motive
	6	.....	Switching	Diesel Elec.	.....	1,000	December	.....	Electro Motive
St. Louis Southwestern	5	B-B	Switching	Diesel-Elec.	240,000	1,000	January	December	Baldwin-West.
	1	C-C	Frt.-Sw.	Diesel-Elec.	360,000	2,000	January	March '48	Baldwin-West.
Savannah & Atlanta	8	C-C	Rd.-Sw.	Diesel-Elec.	155,000	1,500	May	March '48	Baldwin-West.
Seaboard Air Line	11	B-B	Freight	Diesel-Elec.	230,000	1,500	August	.....	Electro-Motive
	5	AIA-AIA	Passenger	Diesel-Elec.	310,000	2,000	September	.....	Electro-Motive
Southern	1	2(B-B)	Transfer	Diesel-Elec.	486,000	2,000	January	3rd qtr. '47	Electro-Motive
	12	B-B	Frt. Booster	Diesel-Elec.	230,000	1,500	March	3rd qtr. '47	Electro-Motive
	4	B-B	Switching	Diesel-Elec.	210,000	1,500	March	1st qtr. '48	Electro-Motive
	4	B-B	Switching	Diesel-Elec.	230,000	1,500	April	Jan. '48	American-G. E.
	2	2(B-B)	Freight	Diesel-Elec.	460,000	3,000	April	June	Electro-Motive
	60	B-B	Freight	Diesel-Elec.	230,000	1,500	July	3rd qtr. '48	Electro-Motive
	20	B-B	Switching	Diesel-Elec.	241,000	1,000	July	3rd qtr. '48	Electro-Motive
	1	2(B-B)	Transfer	Diesel-Elec.	486,000	2,000	July	3rd qtr. '48	Electro-Motive
Southern Pacific	3	3(AIA-AIA)	Passenger	Diesel-Elec.	918,000	6,000	September	3rd qtr. '48	American-G. E.
Southern Pacific	20	.....	Freight	Diesel Elec.	.....	6,000	December	.....	
	20	.....	Switching	Diesel Elec.	.....	1,000	December	.....	
Spokane, Portland & Seattle	3	B-B	Switching	Diesel-Elec.	248,000	1,000	July	.....	Electro-Motive
Spokane, Portland & Seattle	3	2(B B)	Freight	Diesel Elec.	240,000	3,000	June '48		American G. E.
Tallulah Falls	2	B-B	Rd.-Sw.	Diesel-Elec.	140,000	600	October	.....	G. E.-Cooper
Tennessee Central	3	B-B	Freight	Diesel-Elec.	240,000	1,000	June	April '48	Baldwin-West.
Terminal R. R. Assn. of St. Louis	4	B-B	Switching	Diesel-Elec.	198,000	600	January	July	Electro-Motive
	6	B-B	Switching	Diesel-Elec.	248,000	1,000	January	March	Electro-Motive
	2	B-B	Switching	Diesel-Elec.	240,000	1,000	January	.....	Fairbanks, Morse-West.
Texas & Pacific	11	B-B	Switching	Diesel-Elec.	248,000	1,000	November	.....	Electro-Motive
	1	B-B	Switching	Diesel-Elec.	230,000	1,500	November	.....	American-G. E.
Tidewater Southern	2	B-B	Rd.-Sw.	Diesel-Elec.	140,000	600	June	.....	G. E.-Cooper-Bessemer
Unadilla Valley	2	B-B	Rd.-Sw.	Diesel-Elec.	140,000	600	March	October	G. E.-Cooper-Bessemer
Union Pacific	4	AIA-AIA	Passenger	Diesel-Elec.	324,000	2,000	April	1947	Fairbanks, Morse-G. E.
	6	AIA-AIA	Passenger	Diesel-Elec.	324,000	2,000	June	March '48	Fairbanks, Morse-G. E.
	5	B-B	All Purpose	Diesel-Elec.	230,000	1,500	August	Jan. '48	Fairbanks, Morse-West.
	5	B-B	Heavy Duty	Diesel-Elec.	254,000	2,000	September	4th qtr.	Fairbanks, Morse-West.
	5	B-B	Freight	Diesel-Elec.	254,000	2,000	September	4th qtr.	Fairbanks, Morse-West.
	1	B-B	Freight	Diesel-Elec.	254,000	2,000	November	December	Fairbanks, Morse-West.
	8	AIA-AIA	Passenger	Diesel-Elec.	.....	2,000	November	2nd qtr. '48	American-G. E.
	80	B-B	Freight	Diesel-Elec.	230,000	1,500	December	1948	Electro-Motive
	12	B-B	Passenger	Diesel-Elec.	230,000	1,500	December	1948	Electro-Motive
	20	B-B	Switching	Diesel-Elec.	248,000	1,000	December	1948	Electro-Motive
	5	B-B	Switching	Diesel-Elec.	240,000	1,000	November	3rd qtr. '48	Baldwin-West.
	15	B-B	Rd.-Sw.	Diesel-Elec.	.....	1,500	November	1947-48	American-G. E.
	48	B-B	Freight	Diesel-Elec.	.....	1,500	November	1948	American-G. E.
	1	B-B	Rd.-Sw.	Diesel-Elec.	88,000	380	February	March	G. E.-Cater.
Union Railroad	7	B-B	Switching	Diesel-Elec.	230,000	1,000	May	Spring '48	American-G. E.
	7	B-B	Switching	Diesel-Elec.	250,000	1,500	May	Spring '48	American-G. E.
Wabash	1	AIA-AIA	Passenger	Diesel-Elec.	310,000	2,000	October	Dec. '48	Electro-Motive
	2	B-B	Switching	Diesel-Elec.	.....	660	April	Feb. '48	American-G. E.
Western Maryland	2	B-B	Branch Line	Diesel-Elec.	216,000	1,500	August	Aug. '48	Electro-Motive
	2	B-B	Rd.-Sw.	Diesel-Elec.	244,000	1,500	October	2nd qtr. '48	Baldwin-West.

Purchaser	No.	Wheel Arrangement	Service	Type	Weight	Horse-Power	Date of Order	Date of Delivery	Builder Locomotive Builder Electrical Equipment Engine Builder
Western Maryland	2	.....	Freight	Diesel Elec.	.....	1,500	December	.....	Electro-Motive
Wharton & Northern	3	A1A-A1A	Passenger	Diesel-Elec.	381,000	2,000	September	Early '48	Baldwin-West.
Wyandotte Southern	1	B-B	Switching	Diesel-Elec.	198,500	660	November	.....	Baldwin-West.
Youngstown & Northern	1	B-B	Rd.-Sw.	Diesel-Elec.	250,000	1,500	May	.....	American-G. E.

* Not listed last year.

Private Car Lines and Other Orders—For Service in the United States

Alcoa Ore Co.	1	B-B	Switching	Diesel-Elec.	160,000	500	February	April	G. E.-Cummins
Allan Wood Steel Co.	1	B	Switching	Diesel-Elec.	100,000	300	January	.....	G. E.-Cummins
Allegheny Ludlum Steel Corp.	1	B	Switching	Diesel-Elec.	100,000	300	November	.....	G. E.-Cummins
Allis Chalmers	1	B-B	Switching	Diesel-Elec.	198,000	600	August	.....	Electro-Motive
Aluminum Co. of America	1	B-B	Switching	Diesel-Elec.	70,000	380	September	.....	Whit.-West.-Hercules
	1	B-B	Switching	Diesel-Elec.	160,000	500	June	June	G. E.-Cummins
Amalgamated Sugar Co.	1	B-B	Switching	Diesel-Elec.	90,000	300	June	.....	G. E.-Cummins
American Smelting & Refining Co.	2	B-B	Switching	Diesel-Elec.	88,000	300	September	.....	G. E.-Cummins
	2	B-B	Switching	Diesel-Elec.	90,000	300	January	.....	G. E.-Cummins
Anaconda Copper Mining Co.	1	B-B	Switching	Diesel-Elec.	40,000	142	May	March '48	Porter-Hercules-West.
Ashgrove Lime & Portland Cement Co.	1	B-B	Switching	Diesel-Elec.	90,000	300	March	.....	G. E.-Cummins
Atlantic Steel Co.	1	B-B	Switching	Diesel-Elec.	130,000	400	August	November	G. E.-Cummins
Baugh & Sons	1	B-B	Switching	Diesel-Elec.	90,000	300	July	.....	G. E.-Cummins
Bethlehem Steel Co.	1	B	Switching	Diesel-Elec.	50,000	150	November	.....	G. E.-Cummins
Braden Copper Co.	5	B-B	Switching	Diesel-Elec.	120,000	650	October	.....	Whit.-West.-Sterling
Carnegie-Illinois Steel Co.	1	B-B	Switching	Diesel-Elec.	160,000	500	September	April '48	Porter-Cummins-West.
Carnegie-Illinois Steel Corp.	3	B-B	Switching	Diesel-Elec.	240,000	1,000	July	.....	Baldwin-West.
	4	B-B	Switching	Diesel-Elec.	130,000	550	August	.....	G. E.-Cummins
	3	B-B	Switching	Diesel-Elec.	130,000	400	November	.....	G. E.-Cummins
Central Illinois Elec. & Gas Co.	1	B	Switching	Diesel-Elec.	50,000	150	April	September	G. E.-Cummins
Chicago Dist. Elec. Gen. Corp.	1	B-B	Switching	Diesel-Elec.	198,000	600	November	.....	Electro-Motive
Columbia Steel Co.	6	B-B	Switching	Diesel-Elec.	240,000	1,000	February	1947	Baldwin-West.
	6	B-B	Switching	Diesel-Elec.	240,000	1,000	July	.....	Baldwin-West.
Commonwealth Edision Co.	1	B-B	Switching	Diesel-Elec.	198,000	600	March	.....	Electro-Motive
	1	B-B	Switching	Diesel-Elec.	198,000	600	July	.....	Electro-Motive
Dewey Portland Cement Co.	1	B-B	Switching	Diesel-Elec.	90,000	300	June	.....	G. E.-Cummins
Fibreboard Products	1	B-B	Switching	Diesel-Elec.	88,000	380	March	October	G. E.-Cater.
	1	B-B	Switching	Diesel-Elec.	140,000	600	November	.....	G. E.-Cooper-Bessemer
General Electric Co. (Lynn, Mass., works)	2	B	Switching	Diesel-Elec.	50,000	150	October	.....	G. E.-Cummins
General Motors Corp., Electro-Motive Div.	1	B-B	Transfer	Diesel-Elec.	500,000	2,000	May	.....	Electro-Motive
Georgia Marble Co.	1	B-B	Switching	Diesel-Elec.	198,000	600	June	.....	Electro-Motive
Granite City Steel Co.	2	B	Switching	Diesel-Mech.	50,000	190	July	December	Davenport-Besler-Cater.
Great Lakes Steel Co.	2	B-B	Switching	Diesel-Elec.	198,000	600	November	.....	Electro-Motive
Illinois Power Co.	1	B-B	Switching	Diesel-Elec.	90,000	300	April	.....	G. E.-Cummins
Indianapolis Power & Light Co.	1	B-B	Switching	Diesel-Elec.	90,000	300	March	.....	G. E.-Cummins
Inland Steel Co.	4	B-B	Switching	Diesel-Elec.	198,000	600	September	.....	Electro-Motive
International Minerals & Chemical Co.	1	B-B	Switching	Diesel-Elec.	130,000	380	August	.....	Whit.-West.-Cater.
International Nickel Co.	1	B-B	Industrial	Electric	200,000	920	June	.....	General Electric
International Paper Co.	1	B	Switching	Diesel-Elec.	50,000	150	February	.....	G. E.-Cummins
Kaiser Co.	1	A1A-A1A	Rd.-Sw.	Diesel-Elec.	300,000	1,500	August	.....	Baldwin-West.
Kelly Island Lime & Transp. Co.	1	B-B	Switching	Diesel-Elec.	100,000	300	January	.....	G. E.-Cummins
Koppers Co.	1	B-B	Switching	Diesel-Elec.	50,000	150	January	September	Porter-Cummins-West.
	1	B-B	Switching	Diesel-Elec.	90,000	300	April	Jan. '48	Porter-Cummins-West.
	1	B-B	Switching	Diesel-Elec.	40,000	142	March	September	Porter-Hercules-West.
Koppers Co.	2	B	Switching	Diesel-Elec.	50,000	150	August	.....	G. E.-Cummins
	1	B	Switching	Diesel-Elec.	50,000	150	October	.....	G. E.-Cummins
	3	B	Switching	Diesel-Elec.	50,000	150	November	.....	G. E.-Cummins
	1	B-B	Switching	Diesel-Elec.	90,000	300	September	.....	G. E.-Cummins
Kosmos Portland Cement Co.	1	B	Switching	Diesel-Elec.	50,000	150	February	.....	G. E.-Cummins
Michigan Limestone & Chem. Co.	1	B	Switching	Diesel-Elec.	70,000	240	February	.....	Whit.-West.-Hercules
Minnesota & Ontario Paper Co.	1	B	Switching	Diesel-Mech.	40,000	150	January	December	Davenport-Besler-Cater.
Modesto & Empire Traction Co.	1	B-B	Rd.-Sw.	Diesel-Elec.	140,000	600	April	October	G. E.-Cooper-Bessemer
National Tube Co.	2	B	Switching	Diesel-Elec.	100,000	300	March	.....	G. E.-Cummins
New York & Pennsylvania Co.	1	B-B	Switching	Diesel-Elec.	90,000	300	October	.....	G. E.-Cummins
North American Cement Corp.	1	B-B	Switching	Diesel-Elec.	90,000	300	March	.....	G. E.-Cummins
Peoples Gas Light & Coke Co.	1	B-B	Switching	Diesel-Elec.	130,000	300	May	March '48	Porter-Cummins-West.
Philadelphia Electric Co.	1	B-B	Switching	Diesel-Elec.	130,000	400	June	July	G. E.-Cummins
Philip Carey Mfg. Co.	1	B-B	Switching	Diesel-Elec.	160,000	500	January	October	Porter-Cummins-West.
Pittsburgh Steel Co.	1	B	Switching	Diesel-Elec.	100,000	300	April	.....	G. E.-Cummins
Public Service Co. of Indiana	1	B-B	Switching	Diesel-Elec.	130,000	550	June	.....	G. E.-Cummins
Pullman-Standard Car Mfg. Co.	1	B	Switching	Diesel-Elec.	50,000	150	August	.....	G. E.-Cummins
	1	B-B	Switching	Diesel-Elec.	88,000	380	February	March	G. E.-Cater.
John A. Roeblings Sons	1	B-B	Switching	Diesel-Elec.	90,000	300	February	November	G. E.-Cummins
Sheffield Steel Co.	1	B	Switching	Diesel-Elec.	100,000	300	March	.....	G. E.-Cummins
Shell Oil Co.	1	B-B	Switching	Diesel-Elec.	100,000	380	Dec. '46*	.....	Whit.-West.-Hercules
	1	B-B	Switching	Diesel-Elec.	100,000	380	February	.....	Whit.-West.-Hercules
Singer Mfg. Co.	1	B	Switching	Diesel-Elec.	50,000	150	May	September	G. E.-Cummins
Solvay Process Co.	2	B-B	Switching	Diesel-Elec.	130,000	400	April	November	G. E.-Cummins
Southland Paper Mills	1	B-B	Switching	Diesel-Elec.	90,000	300	June	.....	G. E.-Cummins
Southwestern Portland Co.	1	B-B	Switching	Diesel-Elec.	130,000	550	October	.....	G. E.-Cummins
	1	B-B	Switching	Diesel-Elec.	140,000	600	March	.....	G. E.-Cooper-Bessemer
Taylor-Wharton Iron & Steel Co.	1	B-B	Switching	Diesel-Elec.	100,000	300	August	September	G. E.-Cummins
Tenn. Coal, Iron & R. R. Co.	2	B-B	Switching	Diesel-Elec.	248,000	1,000	January	.....	Electro-Motive
	1	B-B	Switching	Diesel-Elec.	248,000	1,000	July	.....	Electro-Motive
	4	B-B	Switching	Diesel-Elec.	198,000	600	July	.....	Electro-Motive
	2	A1A-A1A	Rd.-Sw.	Diesel-Elec.	300,000	1,500	August	.....	Baldwin-West.
	1	B-B	Switching	Diesel-Elec.	160,000	550	October	.....	G. E.-Cummins
U. S. Gypsum Co.	1	B-B	Switching	Diesel-Elec.	90,000	300	April	.....	G. E.-Cummins
U. S. Pipe & Foundry Co.	1	B-B	Switching	Diesel-Elec.	160,000	500	April	June	G. E.-Cummins
	1	B	Switching	Diesel-Elec.	50,000	150	May	.....	G. E.-Cummins
U. S. Potash Co.	1	B-B	Switching	Diesel-Elec.	140,000	600	February	.....	G. E.-Cooper-Bessemer
Victor Chemical Works	1	B-B	Switching	Diesel-Elec.	90,000	300	January	April	G. E.-Cummins
Virginia Bridge Co.	1	B-B	Switching	Diesel-Elec.	90,000	300	January	August	G. E.-Cummins
Vulcan Detinning Co.	1	B-B	Switching	Diesel-Elec.	90,000	300	January	October	Porter-Cummins-West.

* Not listed last year.

Purchaser	No.	Wheel Arrangement	Service	Type	Weight	Horse-Power	Date of Order	Date of Delivery	Builder Locomotive Builder Electrical Equipment Engine Builder
Weirton Steel Co.	1	B-B	Switching	Diesel-Elec.	100,000	300	January	.....	G. E.-Cummins
	1	B-B	Switching	Diesel-Elec.	100,000	300	October	.....	G. E.-Cummins
Western Massachusetts Elec. Co.	1	B	Switching	Diesel-Elec.	50,000	150	August	November	G. E.-Cummins
Westinghouse Air Brake Co.	1	B-B	Switching	Diesel-Elec.	130,000	400	January	.....	G. E.-Cummins
	1	B-B	Switching	Diesel-Elec.	130,000	400	March	.....	Whit.-West.-Cummins

Export

Administracao do Rio de Janeiro	4	B-B	Switching	Diesel-Elec.	90,000	300	August	.....	G. E.-Cummins
	2	B-B	Switching	Diesel-Elec.	130,000	550	June	.....	G. E. Cummins
Argentinal State Railways	90	3(C-C)	Road	Diesel-Elec.	396,000	675	August	.....	Whit.-West.-Super.
	120	2(C-C)	Road	Diesel-Elec.	264,000	675	August	.....	Whit.-West.-Cater.
	27	2(A1A-A1A)	Road	Diesel-Elec.	300,000	1,974	August	.....	G. E.-Cooper-Bessemer
	8	C+C-C+C	Road	Diesel-Elec.	300,000	1,974	August	.....	G. E.-Cooper-Bessemer
	60	A1A-A1A	Road	Diesel-Elec.	140,000	900	August	.....	G. E.-Cater.
Asiatic Petroleum	4	B-B	Switching	Diesel-Elec.	40,000	150	June	May '48	Porter-Cater.-West.
Atencingo Mexico	1	.....	Switching	Diesel-Mech.	50,000	190	September	December	Davenport-Besler-Cater.
Belgian Solvay Co.	1	B	Switching	Diesel-Elec.	50,000	150	October	.....	G. E.-Cummins
Bowater's Newfoundland Pulp & Paper Mills	1	B	Switching	Diesel-Elec.	50,000	150	October	.....	G. E.-Cummins
Canadian Locomotive Co.	1	B	Switching	Diesel-Elec.	50,000	190	February	.....	Whit.-West.-Hercules
	18	B-B	Switching	Diesel-Elec.	150,000	650	February	.....	Whit.-West.-Sterling
Canadian National	18	B-B	Switching	Diesel-Elec.	248,000	1,000	March	.....	Electro-Motive
	1	B-B	Rd.-Sw.	Diesel-Elec.	88,000	380	February	May	G. E.-Cater.
Canadian Pacific	13	B-B	Switching	Diesel-Elec.	230,000	1,000	March	November	American-G. E.
	1	B-B	Switching	Diesel-Elec.	240,000	1,000	November	.....	Baldwin-West.
Canadian Sugar Factories	1	B	Switching	Diesel-Elec.	50,000	150	April	.....	G. E.-Cummins
Cemento de Mixcoac (Mexico)	1	B-B	Switching	Diesel-Elec.	90,000	300	April	.....	G. E.-Cummins
Central Ozama San Domingo	2	.....	Switching	Diesel-Mech.	6,000	250	April	December	Davenport-Besler-Cummins
Central Senado, S. A.	1	B-B	Switching	Diesel-Elec.	100,000	380	November	.....	Whit.-West.-Hercules
Cia. Azuc. Atlantica del Golfo	1	B-B	Switching	Diesel-Elec.	100,000	380	August	.....	Whit.-West.-Super.
Cia. Decas de Santos (Brazil)	6	B-B	Switching	Diesel-Elec.	90,000	300	January	.....	G. E.-Cummins
Chilean State Railways	4	2C+C2	Road	Electric	231,000	4,200	May	.....	Baldwin*
Comp. Azucarera Dominincan	2	.....	Switching	Diesel-Mech.	70,000	250	April	.....	Davenport-Besler-Cummins
Consejo, S. A.	1	B-B	Switching	Diesel-Elec.	100,000	400	March	March '48	Porter-Cummins-West.
Cuban Portland Cement Co.	2	B-B	Switching	Diesel-Elec.	90,000	300	July	.....	G. E.-Cummins
Dominion Textile Co.	1	B	Switching	Diesel-Elec.	50,000	150	June	.....	G. E.-Cummins
Dominion Steel	1	B	Switching	Diesel-Elec.	50,000	200	February	.....	Davenport-Besler-Cummins
Esperance-Longdoz (Belgium)	1	B	Switching	Diesel-Elec.	50,000	150	June	.....	G. E.-Cummins
French Supply Council	6	A1A-A1A	Rd.-Sw.	Diesel-Elec.	240,000	660	January	1947	Baldwin-West.
	15	A1A-A1A	Rd.-Sw.	Diesel-Elec.	225,000	1,000	March	.....	Baldwin-West.
	8	B-B	Switching	Diesel-Elec.	130,000	380	Dec. '46**	.....	Whit.-West.-Cater.
	1	B-B	Switching	Diesel-Elec.	160,000	650	April	.....	Whit.-West.-Buda
	4	B-B	Switching	Diesel-Elec.	130,000	380	July	.....	Whit.-West.-Cater.
General Electric Cubana	1	B	Switching	Diesel-Elec.	50,000	150	May	October	G. E.-Cummins
	1	B	Switching	Diesel-Elec.	50,000	150	June	.....	G. E.-Cummins
Highway Paving Co. (Canada)	1	B	Switching	Diesel-Elec.	50,000	150	August	.....	G. E.-Cummins
Hofors Bruk	1	B-B	Switching	Diesel-Elec.	130,000	400	February	November	Porter-Cummins-West.
International General Electric (for South Africa)	1	B	Switching	Diesel-Elec.	50,000	150	August	.....	G. E.-Cummins
	1	B	Switching	Diesel-Elec.	50,000	150	November	.....	G. E.-Cummins
(for Mexico)	1	B-B	Switching	Diesel-Elec.	90,000	300	February	.....	G. E.-Cummins
(for Brazil)	1	B+B	Switching	Diesel-Elec.	94,000	380	October	.....	G. E.-Cater.
(for Venezuela)	10	C+C	Road	Diesel-Elec.	60 metric tons	800	August	.....	G. E.-Cater.
Laminadora de Acero (Mexico)	1	B	Switching	Diesel-Elec.	50,000	150	October	.....	G. E.-Cummins
Lion & Cia. (Brazil)	2	B-B	Switching	Gas-Elec.	64,000	165	March	.....	Davenport-Besler-Cater.
Luossavaara Kiirunavaara	3	B-B	Switching	Diesel-Elec.	90,000	300	May	March '48	Porter-Cummins-West.
	1	B-B	Switching	Diesel-Elec.	50,000	150	June	Sept. '48	Porter-Cummins-West.
Maritrop Trading Corp.	2	B-B	Switching	Diesel-Elec.	100,000	420	January	.....	Whit.-West.-Cooper-Bessemer
Newfoundland Railways	3	B+B	Switching	Diesel-Elec.	94,000	380	June	.....	G. E.-Cater.
Parangua Docks (Brazil)	3	B	Switching	Diesel-Elec.	50,000	150	June	.....	G. E.-Cummins
Petroleos Mexicanos	1	B-B	Rd.-Sw.	Diesel-Elec.	140,000	600	September	.....	G. E.-Cooper-Bessemer
Portuguese State Railways	12	B-B	Switching	Diesel-Elec.	90,000	380	October	.....	G. E.-Cater.
Price Bros. & Co.	1	B-B	Switching	Diesel-Elec.	90,000	300	November	.....	G. E.-Cummins
Rede de Viacao Parana Santa Catarina	4	C+C	Rd.-Sw.	Diesel-Elec.	64 metric tons	600	January	.....	G. E.-Cooper-Bessemer
Roberval & Saguenay	1	B-B	Rd.-Sw.	Diesel-Elec.	250,000	1,500	January	September	American-G. E.
St. Lawrence Paper Mills Co.	1	B	Switching	Diesel-Elec.	50,000	150	January	.....	G. E.-Cummins
San Vicente Steel Mill (Chile)	2	B-B	Switching	Diesel-Elec.	90,000	300	October	.....	G. E.-Cummins
Sociedade de Representacoes, Lda.	2	B-B	Switching	Diesel-Elec.	100,000	380	November	.....	Whit.-West.-Hercules
	2	B	Switching	Diesel-Elec.	50,000	190	November	.....	Whit.-West.-Hercules
South Porto Rico Sugar Co.	1	B-B	Rd.-Sw.	Diesel-Elec.	140,000	600	August	.....	G. E.-Cooper-Bessemer
Southeastern Ry. (Mexico)	3	B-B	Switching	Diesel-Elec.	160,000	500	June	July	G. E.-Cummins
Stor Kopparberg (Sweden)	2	B-B	Rd.-Sw.	Diesel-Elec.	88,000	380	September	.....	G. E.-Cater.
Toronto, Hamilton & Buffalo	4	B-B	Switching	Diesel-Elec.	248,000	1,000	June	December	American-G. E.
Uruguayan Port Administration	2	B-B	Switching	Diesel-Elec.	90,000	300	June	.....	G. E.-Cummins
Valparaiso (Chile) Port Administration	3	B-B	Switching	Diesel-Elec.	88,000	480	April	.....	Whit.-West.-Hercules
Vera Cruz Terminal Railway	3	B-B	Rd.-Sw.	Diesel-Elec.	140,000	600	October	.....	G. E.-Cooper-Bessemer

* Baldwin is building only the mechanical parts; Westinghouse and General Electric will each equip two of the locomotives.

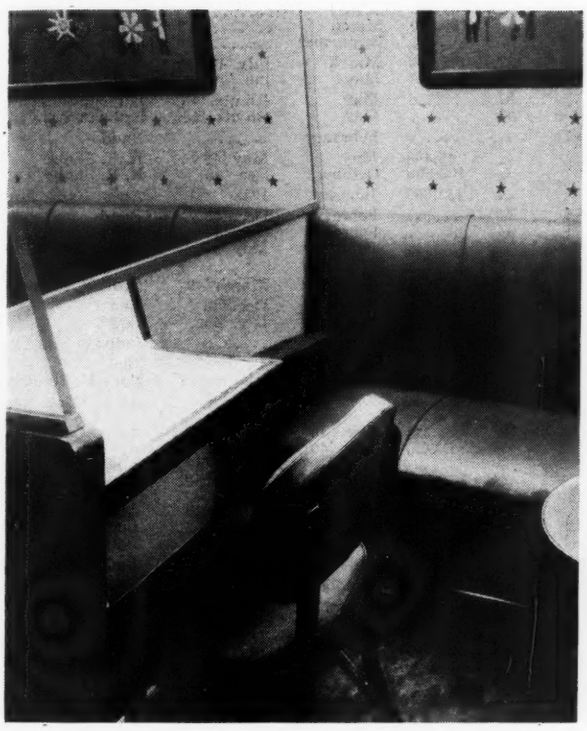
** Not listed last year.

CANADA

Canadian National	18	B-B	Switching	Diesel-Elec.	150,000	650	May	1947-48	Canadian-West.-Sterling
Consolidated Sand & Gravel Co.	1	B	Switching	Diesel-Elec.	50,000	190	February	1947	Canadian-West.-Hercules

PASSENGER-TRAIN CARS ORDERED TOTAL 283

By **FRED C. MILES**
Associate Editor



Corner of one of the Pennsylvania's new "Trail Blazer" coaches

Orders for 283 passenger-train cars for domestic service were placed during 1947, according to reports received by *Railway Age*. Export orders were placed for 63 cars. Included in the total number of cars ordered are 50 express-refrigerator cars for the Atlantic Coast Line, 25 passenger-service box cars for the Great Northern and 2 1,000-hp. Diesel-electric rail motor cars for the Chicago, Milwaukee, St. Paul & Pacific. The rail motor cars, which will have 45-ft. baggage-mail rooms, were ordered in June for December delivery. The engines and electrical equipment are being supplied by the Electro-Motive Division of the General Motors Corporation and the cars are being built in the Milwaukee's own shops. Eighty-one of the total of 283 passenger-train cars ordered will be constructed in railroad company shops.

The accompanying table lists the cars by railroads. Also published are summaries and analyses of passenger-train cars ordered and delivered each year from 1920 through 1947. Detailed information about railroad plans for the use of new passenger-train equipment was presented in the November 15, 1947, (Passenger Progress) issue of *Railway Age*.

The detailed list of passenger-train cars ordered this year was compiled from reports to this paper by the railroads, checked and amplified with information received from the car builders through the cooperation and assistance of the American Railway Car Institute.

Passenger-Train Cars Ordered, 1920-1947

	Carbuilders' Shops			Railroad Shops			
Year	Passenger Carrying	Non-Passenger Carrying	For Pullman Company	Passenger Carrying	Non-Passenger Carrying	Total Domestic	U.S. Export
1947	126	76	0	50	31	283	63
1946	1,193	574	0	5t	6	1,829	56
1945	2,690*	213	0	90	0	2,993	49
1944	683*	32	0	10	0	725	374
1943	1,670*	0	0	0	15	1,685	...
1942	32*	2	0	0	0	34	...
1941	206*	115	197	31	0	549	27
1940	305	15	53	0	6	379	21
1939	175	21	125	0	0	321	28
1938	79	33	84	63	19	278	...
1937	181	145	171	39	31	567	...
1936	367	33	1	38	12	451	...
1935	48	69	10	6	0	133	...
1934	307	20	8	71	23	429	15
1933	13	1	3	2	0	19	...
1932	33	6	0	1	4	44	...
1931	10	21	1	3	2	37	21
1930	405	102	102	16	75	700	15
1929	767	677	550	26	363	2,383	108
1928	654	1,282	244	53	160	2,393	35
1927	993	471	118	84	27	1,693	47
1926	965	469	519	55	52	2,060	...
1925	1,002	699	479	20	74	2,274	68
1924	1,202	761	701	14	97	2,775	25
1923	762	930	424	18	98	2,232	5
1922	1,442	705	300	23	14	2,484	10
1921	125	11	100	1	50	287	145
1920	690	380	458	12	51	1,591	114

* Includes troop hospital, sleeping and kitchen cars.
Source: 1947—*Railway Age;* all other—American Railway Car Institute.

Passenger-Train Cars Delivered

Year	For Domestic Service	U.S. Export	Total
1947	826	26	852
1946	1,337	35	1,372
1945	931	..	931
1944	1,003	..	1,003
1943	685	21	706
1942	418	11	429
1941	349	14	363
1940	257	28	285
1939	276	..	276
1938	434	..	434
1937	629	..	629
1936	191	..	191
1935	205	..	205
1934	275	15	290
1933	9	..	9
1932	77	..	77
1931	323	21	344
1930	1,534	40	1,574
1929	2,455	128	2,583
1928	1,571	121	1,692
1927	2,087	42	2,129
1926	2,814	111	2,925
1925	2,428	42	2,470
1924	2,517	54	2,571
1923	2,034	45	2,079
1922	977	156	1,133
1921	1,161	49	1,210
1920	831	135	966

Source: American Railway Car Institute —1947 figures include an estimate for the last half of December.

Domestic

Purchaser	No.	Class	Length Ft.	Length In.	Construction	Seating Capacity	Weight	Date of Order	Expected Delivery Date	Builder
Atchison, Topeka & Santa Fe	1	Sleeping	..	..	Alloy Steel	..	.....	April	Jan. '48	Pullman-Standard
	6	Lounge	..	..	Alloy Steel	..	.....	June	.....	Pullman-Standard
Atlantic Coast Line	50	Exp.-Refrig.	50	10	Steel	..	75,500	January	December	Amer. Car & Fdy.
Chesapeake & Ohio	10	Mail	73	7¾	Steel	..	105,920	March	.....	Pullman-Standard
	8	Mail	63	8	Steel	..	100,000	March	.....	Pullman-Standard
	1	Business	..	..	Steel	..	.....	September	.....	Pullman-Standard
Chicago, Burlington & Quincy	2	Sleeping	85	0	St. Steel	32	145,100	March	July '48	Budd
	2	Parlor	85	0	St. Steel	54	153,400	May	Jan. '49	Budd
Chicago, Rock Island & Pacific**	8	Coach	70	1	Steel	82	.....	May	4th qtr. '48	Pullman-Standard
	4	Coach	57	4	Steel	60	.....	May	4th qtr. '48	Pullman-Standard
Denver & Rio Grande Western	2	Sleeping	..	..	St. Steel	..	.....	February	.....	Budd
Great Northern	25	Pass. Box	40	6	Steel	..	42,400	May	May '48	R. R. Shops
	4	Baggage	70	0	Steel	..	100,000	October	Dec. '48	R. R. Shops
Gulf, Mobile & Ohio	4	Sleeping	85	0	Steel	..	135,000	January	1948	Amer. Car & Fdy.
International-Great Northern	3	Coach	85	0	St. Steel	60	.....	February	Dec. '48	Budd
	1	Din.-Lnge.	85	0	St. Steel	44	.....	February	Dec. '48	Budd
	1	Bag.-Mail	85	0	H. S. Steel	..	.....	February	May '48	Amer. Car & Fdy.
Long Island	50	Double-deck Coach	80	8¾	Steel	132	.....	October	March '49	P. R. R. Shops
Missouri Pacific	1	Din.-Lnge.	85	0	St. Steel	44	.....	February	Dec. '48	Budd
	2	Pullman	85	0	St. Steel	..	.....	February	Dec. '48	Budd
New York, Chicago & St. Louis	5	Coach	85	0	Steel	52	132,000	April	.....	Pullman-Standard
Norfolk & Western	20	Sleeping	85	0	St. Steel	22	137,900	January	1st qtr. '49	Budd
	2	Dining	85	0	Steel	36	136,277	November	4th qtr. '48	Pullman-Standard
Pennsylvania	3	Coach	85	0	Steel	44	.....	Dec. '46*	Feb. '49	Amer. Car & Fdy.
	4	Coach-Bar-Lnge.	85	0	Steel	49	.....	Dec. '46*	April '49	Amer. Car & Fdy.
	2	Dining	85	0	Steel	48	.....	Dec. '46*	April '49	Amer. Car & Fdy.
	2	Bag.-Dorm.	85	0	Steel	..	.....	Dec. '46*	March '49	Amer. Car & Fdy.
	19	Sleeping	85	0	Steel	22	.....	Dec. '46*	March '49	Amer. Car & Fdy.
	1	Sleep.-Buff. Lnge.	85	0	Steel	32	.....	Dec. '46*	March '49	Amer. Car & Fdy.
	1	Sleeping	85	0	St. Steel	22	.....	Dec. '46*	June '48	Budd
	2	Sleeping	85	0	St. Steel	22	.....	January	Jan. '49	Budd
Seaboard Air Line	1	Bag.-Dorm.	..	..	St. Steel	..	.....	July	July '47	Budd
Southern	2	Dining	..	..	St. Steel	..	.....	October	.....	Budd
Southern Pacific	1	Dining	85	0	H. S. Steel	48	113,296	September	Nov. '48	Pullman-Standard
	1	Lounge	85	0	H. S. Steel	39	126,382	September	Dec. '48	Pullman-Standard
	1	Coffee Shop	85	0	H. S. Steel	46	133,653	September	Dec. '48	Pullman-Standard
	1	Bag.-Dorm.	85	0	H. S. Steel	..	120,605	September	Oct. '48	Pullman-Standard
	2	Chair	85	0	H. S. Steel	44	125,270	September	Oct. '48	Pullman-Standard
	3	Baggage	85	0	Alum. and H. S. Steel	..	128,336	September	Aug. '48	Pullman-Standard
	2	Bag.-Mail	82	6	Alum. and H. S. Steel	..	119,257	September	Aug. '48	Pullman-Standard
	3	Lounge	85	0	Alum. and H. S. Steel	39	126,382	October	{Dec. '48 & Jan. '49	Pullman-Standard
	3	Sleeping	85	0	H. S. Steel	..	128,550	October	2nd qtr. '49	Pullman-Standard
	7	Sleeping	85	0	H. S. Steel	..	136,177	October	2nd qtr. '49	Pullman-Standard
	4	Sleeping	85	0	H. S. Steel	..	129,478	October	2nd qtr. '49	Pullman-Standard
	25	Sleeping	85	0	H. S. Steel	..	134,158	October	2nd qtr. '49	Pullman-Standard
	2	Sleeping	85	0	H. S. Steel	..	134,158	October	2nd qtr. '49	Pullman-Standard
Texas & Pacific	1	Coach	85	0	St. Steel	60	.....	February	.....	Budd
Wabash	6	Undesignated	..	..	St. Steel	..	.....	October	1st qtr. '49	Budd
Western Pacific	2	Sleeping	..	..	St. Steel	..	.....	February	.....	Budd

** The cars ordered by this road will make up four 3-car units, each unit weighing 275,000 lb. and consisting of two 82-passenger coaches and one, 60-passenger coach.
* Not listed last year.

Canada

Purchaser	No.	Class	Seating Capacity	Length ft.	Length in.	Construction	Weight	Date of Order	Date of Delivery	Builder
Canadian Pacific	10	Bag.-Express	.....	81	0	Steel	117,000	September	1948	Canadian Car & Fdy.
	10	Mail-Express	.....	81	0	Steel	122,000	September	1948	Canadian Car & Fdy.
	6	Horse-Express	.....	81	0	Steel	120,000	November	1948	Canadian Car & Fdy.

United States—Export

Purchaser	No.	Class	Length Ft.	Length In.	Construction	Seating Capacity	Weight	Date of Order	Expected Delivery Date	Builder
Central of Brazil	7	Bag.-Mail	..	..	St. Steel	..	.....	February	.....	Budd
	16	Coach	..	..	St. Steel	..	.....	February	.....	Budd
	7	Dining	..	..	St. Steel	..	.....	February	.....	Budd
	19	Sleeping	..	..	St. Steel	..	.....	February	.....	Budd
	4	Cabin	..	..	St. Steel	..	.....	February	.....	Budd
	2	Lunch-Obs.	..	..	St. Steel	..	.....	February	.....	Budd
	1	Adminis.	..	..	St. Steel	..	.....	February	.....	Budd
	7	Mail	..	..	St. Steel	..	.....	February	.....	Budd

120,051 FREIGHT CARS ORDERED IN 1947

By FRED C. MILES
Associate Editor

Of the 121,095 freight-train cars ordered in the United States last year only 1,561 were ordered from abroad, according to reports received by *Railway Age*. For domestic use, railroads placed orders for 106,182 freight-train cars, of which 27,206 were ordered from railroad company shops, and private car lines and industrial companies ordered 13,352 freight cars, 1,700 of which were ordered from their own shops.

Cars Delivered and on Order

During the year deliveries amounted to 95,202 cars, including 27,518 for export. Of the 67,684 cars produced for domestic use, 15,355 were delivered by railroad and private line shops and 52,329 by the car builders. (The delivery figures include an estimate for the last half of December.) Freight cars for domestic use on order and undelivered on December 15 totaled 122,659, including 30,256 ordered from railroad company shops.

An appended table lists in detail by purchaser all the cars ordered last year. Two accompanying tables summarize and analyze the volume of orders and deliveries from 1920 through 1947.

The detailed list of orders was compiled from reports to *Railway Age* by the railroads, private car lines and industrial concerns. The list was checked and amplified with data received from the carbuilders through the cooperation and assistance of the American Railway Car Institute.

Freight Cars Delivered—1920-1947

(For Domestic Service)

Year	Railroad and Private Line Shops	Car-builders	Total	U.S. Export
1947	15,355	52,329	67,684	27,518
1946	10,070	31,885	41,955	17,839
1945	12,853	31,011	43,864	10,658
1944	15,050	27,053	43,003	38,759
1943	7,220	24,616	31,836	43,117
1942	15,444	47,429	62,873	8,529
1941	17,227	63,396	80,623	2,386
1940	17,025	45,316	62,341	1,734
1939	5,641	19,491	25,132	381
1938	6,480	9,990	16,470	611
1937	15,569	61,929	77,498	1,321
1936	15,643	30,969	46,612	523
1935	1,550	5,965	7,515	1,263
1934	8,965	16,211	25,176	91
1933	1,300	863	2,163	39
1932	2,770	482	3,252	84
1931	5,706	7,497	13,203	410
1930	9,839	65,081	74,920	1,731
1929	12,878	68,712	81,590	3,448
1928	7,685	38,375	46,060	1,453
1927	8,540	54,830	63,370	1,453
1926	9,964	78,898	88,862	2,445
1925	11,028	94,707	105,735	3,077
1924	9,618	104,093	113,711	1,584
1923	29,501	146,247	175,748	1,966
1922	2,423	63,866	66,289	1,399
1921	1,033	39,259	40,292	5,351
1920	14,171	46,784	60,955	14,602

Source: American Railway Car Institute. (The 1947 totals include an estimate for the last half of December.)

Railroad Orders—For Service in the United States

FREIGHT CARS ORDERED—1947

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of Order	Date of Delivery	Builder
Aliquippa & Southern	10	Hopper	160,000	47	0	Steel	69,000	March	December	R. R. Shops
Atchison, Topeka & Santa Fe	500	Auto	.....	50	6	Steel	.....	March	Start Jan. '48	Pressed Steel
	225	Hopper	140,000	40	8	Steel	.....	April	Start Feb. '48	Pullman-Standard
	125	Cov. Hopper	140,000	29	3	Steel	.....	May	2nd qtr. '48	Amer. Car & Fdy.
	250	Gondola	140,000	52	6	Steel	.....	May	1948	Amer. Car & Fdy.
	750	Gondola	140,000	52	6	Steel	.....	October	1948	Amer. Car & Fdy.
	250	Ballast	140,000	40	8	Steel	.....	October	1948	Amer. Car & Fdy.
	200	Gondola	140,000	40	8	Steel	.....	October	1948	Amer. Car & Fdy.
	100	Gondola	140,000	65	6	Steel	.....	October	2nd qtr. 48	Pressed Steel
	300	Hopper	100,000	33	½	Steel	.....	October	July '48	Pullman-Standard
	200	Cov. Hopper	140,000	29	3	Steel	.....	October	3rd qtr. '48	General American
	250	Tank	16,000g.	..	.	Steel	.....	October	4th qtr. '48	General American
Atlanta & West Point	50	Hopper	50,000	33	0	Steel	.....	August	2nd qtr. '48	Pullman-Standard
Atlantic Coast Line	300	Gondola	100,000	41	6	Steel	44,500	October	1st qtr. '48	Pullman-Standard
	1,800	Box	100,000	40	6	Steel	47,000	October	2nd qtr. '48	Amer. Car & Fdy.
	1,000	Hopper	100,000	33	0	Steel	43,000	October	3rd qtr. '48	Amer. Car & Fdy.
	200	Pulpwood	100,000	36	6	Steel	35,000	October	2nd qtr. '48	Amer. Car & Fdy.
	100	Phosphate	140,000	35	9	Steel	51,000	October	2nd qtr. '48	Amer. Car & Fdy.
	60	Cement	140,000	29	3	Steel	52,000	October	2nd qtr. '48	Amer. Car & Fdy.
Baltimore & Ohio	1	Gondola	140,000	46	0	Steel	53,500	January	May	R. R. Shops
	2,000	Hopper	100,000	33	0	Steel	39,900	February	October	Bethlehem
	1,000	Hopper	100,000	33	0	Steel	40,100	February	December	Amer. Car & Fdy.
	500	Hopper	100,000	33	0	Steel	40,000	February	October	Pressed Steel
	500	Hopper	100,000	33	0	Steel	39,600	February	November	Ralston
	25	Flat	140,000	53	6	Steel	56,000	February	Jan. '48	R. R. Shops
	1,000	Hopper	100,000	33	0	Steel	40,600	July	December	Bethlehem
	1,500	Hopper	140,000	40	8	Steel	50,400	July	April '48	Pullman-Standard
	500	Cov. Hopper	140,000	28	1	Steel	50,400	July	Feb. '48	Greenville
	1,000	Hopper	140,000	40	8	Steel	50,400	November	April '48	Bethlehem
	1,000	Hopper	140,000	40	8	Steel	50,400	November	April '48	Pressed Steel
Birmingham Southern	128	Hopper	140,000	30	3	Steel	42,000	July	1st qtr. '48	Pullman-Standard
Central of Pennsylvania	125	Cov. Hopper	140,000	29	6	Steel	52,000	March	1st qtr. '48	Bethlehem
	8	Cov. Hopper	140,000	25	6	Steel	44,000	April	1st qtr. '48	C. of N. J.
Chesapeake & Ohio	4,000	Hopper	140,000	38	6	Steel	47,100	April & Aug.	Feb.-Oct. '48	Amer. Car & Fdy.
	1,000	Hopper	140,000	40	8	Steel	50,000	January	May-July '48	General American
	1,000	S.S. Box	100,000	40	6	Steel Frame	45,500	January	1st qtr. '48	Pullman-Standard
	1,000	Gondola	100,000	40	6	Steel	43,500	September	2nd qtr. '48	Pressed Steel
	500	Cov. Hopper	140,000	29	3	Steel	52,900	September	Mid-'48	Ralston
	150	Caboose	.....	24	½	Steel Frame	41,400	September	Sept. '48	Amer. Car & Fdy.
	200	Box	100,000	..	.	.....	.....	December	.....	Pressed Steel

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of Order	Date of Delivery	Builder
Chicago & Eastern Illinois	200	Box	100,000	40	6	Steel	.....	July	3rd qtr. '48	Amer. Car & Fdy.
	25	Flat	100,000	53	6	Steel	.....	May	1st qtr. '48	Amer. Car & Fdy.
	500	Hopper	100,000	36	6	.....	.....	January	1st qtr. '48	Pullman-Standard
Chicago & Illinois Midland	350	Gondola	140,000	46	6	Steel	55,400	August	1st qtr. '48	Pullman-Standard
	50	Gondola	140,000	46	6	Steel	55,400	November	1st qtr. '48	Pullman-Standard
Chicago & North Western	1,000	D.S. Box	100,000	40	6	Steel	46,800	April	Mid-'48	Amer. Car & Fdy.
Chicago & Western Indiana	50	Hopper	140,000	40	8	Steel	48,000	March	2nd qtr. '48	General American
Chicago, Burlington & Quincy	1,200	S.S. Box	100,000	40	6	Steel	46,000	March	October	R. R. Shops
	750	S.S. Box	100,000	40	6	Steel	46,000	October	March '48	R. R. Shops
	250	S.S. Box	100,000	50	6	Steel	58,000	October	April '48	R. R. Shops
	500	Hopper	140,000	40	8	Steel	46,500	October	May '48	R. R. Shops
	250	Ballast	140,000	40	9	Steel	58,500	October	May '48	R. R. Shops
	500	Stock	80,000	40	6	Steel Frame	40,000	October	July '48	R. R. Shops
	300	Flat	100,000	53	6	Steel	49,000	October	Aug. '48	R. R. Shops
	200	Tank	140,000	43	6	Steel	61,700	October	Sept. '48	R. R. Shops
	150	Hopper	140,000	29	3	Steel	51,000	October	Oct. '48	R. R. Shops
	100	S.S. Box	100,000	50	6	Steel	58,000	October	Nov. '48	R. R. Shops
Chicago Great Western	10	Gondola	140,000	65	6	Steel	59,100	September	.....	Pressed Steel
Chicago Heights Terminal Transfer	25	Cov. Hopper	140,000	29	3	.....	.....	August	3rd qtr. '48	General American
	15	Gondola	140,000	65	6	.....	.....	September	June '48	Pressed Steel
Chicago, Indianapolis & Louisville	100	Hopper	140,000	40	8	Steel	48,000	March	1st qtr. '48	General American
	300	Gondola	100,000	40	6	Steel	44,000	August	1st qtr. '48	Pullman-Standard
	50	Gondola	140,000	65	6	Steel	50,000	July	1st qtr. '48	Greencille
	100	Box	100,000	50	6	Steel	53,700	October	1st qtr. '48	Pressed Steel
Chicago, Milwaukee, St. Paul & Pacific	1,600	Box	100,000	40	6	Steel Frame	.....	Jan.-Feb.	1947-48	R. R. Shops
	1,800	Gondola	100,000	41	6	Composite	.....	March-April	1st half '48	R. R. Shops
	1,000	Gondola	100,000	41	6	Composite	.....	June	Mid-'48	R. R. Shops
	1,000	Hopper	100,000	..	.	Steel	.....	July	1948	Pressed Steel
	250	Cov. Hopper	140,000	..	.	Steel	.....	July	1948	General American
	3,022	Box	100,000	40	6	Steel Frame	.....	December	1948-49	R. R. Shops
Chicago, St. Paul, Minneapolis & Omaha	400	D.S. Box	100,000	40	6	Steel	46,800	April	Sept. '48	Amer. Car & Fdy.
Clinchfield	8	Caboose	.....	27	2	Steel	60,000	April	Feb. '48	Intl. Ry. Car
Delaware, Lackawanna & Western	500	D.S. Box	100,000	40	6	Steel	44,500	August	May '48	Amer. Car & Fdy.
Delaware & Hudson	4	Undesignated	80,000	16	8½	S. U.	49,700	February	November	R. R. Shops
Delray Connecting	100	Hopper	140,000	40	8	Steel	48,800	January	October	Greenville
Denver & Rio Grande Western	500	Gondola	100,000	42	9	Steel	43,000	March	Jan. '48	Pressed Steel
	500	Gondola	100,000	42	9	Steel	43,000	November	Nov. '48	Pressed Steel
	50	Gondola	140,000	65	6	Steel	59,000	August	June '48	Pressed Steel
	15	Tank	7,000g.	29	7	Steel	38,000	August	June '48	General American
	10	Caboose	60,000	29	2½	Steel	48,000	July	December	R. R. Shops
	100	Stock	80,000	40	6	Steel	42,000	November	Sept. '48	R. R. Shops
Detroit, Toledo & Ironton	200	D.S. Box	100,000	40	6	S. S.	46,200	February	December	Amer. Car & Fdy.
	10	Ballast	100,000	29	6	.....	59,600	October	2nd qtr. '48	Magor
	100	D.S. Box	100,000	40	6	Steel	46,200	October	2nd qtr. '49	Amer. Car & Fdy.
	100	Cov. Hopper	140,000	29	3	Steel	52,700	October	4th qtr. '48	Amer. Car & Fdy.
	50	Hopper	140,000	40	8	Steel	47,000	November	3rd qtr. '48	Greenville
Detroit & Mackinac	25	Hopper	100,000	33	0	Steel	45,000	March	1st qtr. '48	General American
	10	Cov. Hopper	140,000	29	3	Steel	51,800	March	2nd qtr. '48	General American
Detroit & Toledo Shore Line	50	Box	100,000	40	6	Steel	44,880	February	1948	Pullman-Standard
	100	Cov. Hopper	140,000	29	3	Steel	52,900	June	3rd qtr. '48	General American
Donora Southern	20	Hopper	140,000	40	8	Steel	51,350	September	March '48	Greenville
	30	Air Dump	140,000	40	0	Steel	74,500	October	July '48	Magor
	1	Caboose	100,000	19	4¾	Steel	36,000	March	July	Int'l. Ry. Car
Duluth, Missabe & Iron Range	500	Ore	140,000	19	10	Steel	.....	June	1948	Pullman-Standard
	500	Ore	140,000	19	10	Steel	.....	June	.....	Amer. Car & Fdy.
	500	Ore	150,000	19	10	Steel	45,400	June	.....	Pressed Steel
	500	Ore	140,000	19	10	Steel	43,500	June	1st qtr. '48	General American
Elgin, Joliet & Eastern	500	S.S. Box	100,000	40	6 1/16	Steel Frame	46,500	August	1948	Magor
	400	Gondola	100,000	48	6	Alloy Steel	43,800	August	1947-'48	Ralston
	100	Gondola	140,000	65	6	Steel	69,000	August	1948	Greenville
Erie	700	Box	100,000	40	6	Steel	45,700	October	3rd qtr. '48	Amer. Car & Fdy.
	1,000	Hopper	100,000	33	0	Steel	39,700	October	3rd qtr. '48	Amer. Car & Fdy.
	100	Cov. Hopper	140,000	29	3	Steel	53,600	October	4th qtr. '48	Ralston
Georgia	75	Hopper	100,000	33	0	Steel	.....	August	2nd qtr. '48	Pullman-Standard
Grand Trunk Western	500	Box	100,000	40	6	Steel	44,880	February	1948	Pullman-Standard
Great Northern	475	D.S. Box	100,000	40	6	Steel	41,900	May	April '48	R. R. Shops
	500	D.S. Box	100,000	40	6	Steel	41,900	October	Aug. '48	R. R. Shops
	200	Gondola	100,000	40	6	Steel	42,100	December	1st. qtr. '49	Amer. Car & Fdy.
	75	Cov. Hopper	140,000	29	3	Steel	51,000	December	1st. qtr. '49	Amer. Car & Fdy.
Gulf, Mobile & Ohio	300	D.S. Box	100,000	40	6	Steel	45,000	June	2nd qtr. '48	Amer. Car & Fdy.
	100	Gondola	100,000	41	3	Steel	44,000	June	1st qtr. '48	Amer. Car & Fdy.
	50	Cov. Hopper	140,000	29	3	Steel	52,700	July	2nd qtr. '48	Amer. Car & Fdy.
	50	Gondola	140,000	65	6	Steel	59,000	July	2nd qtr. '48	Pressed Steel
Illinois Central	500	Hopper	100,000	33	0	Steel	45,000	March	Jan. '48	General American
	500	Hopper	100,000	33	0	Steel	45,000	March	Feb. '48	Amer. Car & Fdy.
	1,500	Hopper	100,000	33	0	Steel	45,000	July	4th qtr. '48-1st. qtr. '49	R. R. Shops
	1,500	D.S. Box	100,000	40	6	Steel	47,400	July	April-Nov. '48	R. R. Shops
Illinois Terminal	100	Box	100,000	..	.	.....	.....	September	2nd qtr. '48	Amer. Car & Fdy.
Interstate	500	Hopper	100,000	30	2⅝	Steel	42,000	January	August	Virginia Bridge
Kansas City Southern	400	Box	100,000	40	6	Steel	44,900	January	4th qtr.	Pullman-Standard
	800	Box	100,000	40	6	Steel	45,100	January	4th qtr. '47-1st qtr. '48	Pullman-Standard
	500	Gondola	140,000	40	6	Steel	53,000	November	3rd qtr. '48	Pullman-Standard
Kansas, Oklahoma & Gulf	5	Cov. Hopper	140,000	29	3	Steel	52,600	April	.....	Amer. Car & Fdy.
Lake Superior & Ishpeming	200	Ore	140,000	..	.	.....	.....	October	June '48	Bethlehem
Lehigh & New England	100	Cov. Hopper	140,000	26	3½	Steel	54,000	September	April '48	Amer. Car & Fdy.
Lehigh Valley	500	Hopper	110,000	33	0	Steel	38,000	September	March '48	Bethlehem
Louisville & Nashville	1,200	Hopper	100,000	33	0	Steel	40,400	January	Beg. Jan. '48	Amer. Car & Fdy.
	200	Ballast	140,000	40	8	Steel	53,900	January	Beg. Nov. '47	Amer. Car & Fdy.
	1,600	Hopper	100,000	33	0	Steel	40,400	January	Beg. Oct. '47	Pullman-Standard
	1,500	Hopper	100,000	33	0	Steel	40,400	May	Beg. Dec. '47	Bethlehem
	1,500	Hopper	100,000	33	0	Steel	40,400	May	Feb. '48	Pullman-Standard

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of Order	Date of Delivery	Builder
Missouri-Illinois	100	Hopper	140,000	40	8	Steel	47,200	December	.....	Mo. Pac. Shops
Missouri-Kansas-Texas	300	S.S. Box	100,000	40	6	Steel	46,200	May	July '48	Amer. Car & Fdy.
	200	Triple Hopper	140,000	38	6	Steel	47,100	May	Sept. '48	Amer. Car & Fdy.
	200	Gondola	140,000	41	3	Steel	45,900	September	March '48	R. R. Shops
Missouri Pacific	1,000	Gondola	100,000	45	0	Steel	45,700	October	Dec. '48	R. R. Shops
New Jersey, Indiana & Illinois	100	D.S. Box	100,000	50	6	Steel	.....	June	1948	Pressed Steel
New York Central	1,000	Box	110,000	40	6	Steel	46,200	June	March '48	Greenville
	1,000	Box	110,000	40	6	Steel	46,200	June	March '48	Amer. Car & Fdy.
	1,000	Box	100,000	40	6	Steel	45,500	July	May '48	Pullman-Standard
	2,000	Hopper	110,000	31	6	Steel	39,700	October	July '48	Despatch Shops
New York, Chicago & St. Louis	600	D.S. Box	100,000	40	6	Steel Frame	45,500	January	Jan. '48	Pullman-Standard
	400	D.S. Box	100,000	40	6	Steel Frame	45,500	October	March '48	Pullman-Standard
New York, New Haven & Hartford	500	D.S. Box	100,000	40	6	Steel	45,600	January	Starting Nov. '47	Pullman-Standard
	1,000	D.S. Box	100,000	40	6	Steel	45,600	January	Completing in	Pullman-Standard
	1,000	D.S. Box	100,000	40	6	Steel	45,600	January	May '48	Pullman-Standard
	70	Caboose	.....	27	2	Steel	60,000	January	Jan. '48	Intl. Ry. Car
	5	Caboose	.....	27	2	Steel	60,000	January	December	Intl. Ry. Car
Norfolk & Western	100	Hopper	140,000	38	0	Steel	55,900	January	3rd qtr. '47	R. R. Shops
	2,000	Hopper	140,000	36	9¾	Steel	50,300	June	Feb.-Sept. '48	R. R. Shops
Northern Pacific	1,000	Box	100,000	..	.	.....	.....	Dec. '46*	1947-48	R. R. Shops
	500	S.S. Box	100,000	40	6	Steel	46,000	December	1948	R. R. Shops
	250	Ballast	.....	..	.	.....	.....	December	1948	R. R. Shops
	200	Flat	100,000	52	0	Steel	47,900	December	1948	R. R. Shops
	50	Tank	16,000g.	..	.	.....	.....	December	1948	R. R. Shops
Pennsylvania	1,000	D.S. Box	100,000	50	6	Steel	46,000	June	April '48	R. R. Shops
Pittsburg & Lake Erie	1,000	Hopper	140,000	40	8	Steel	48,900	October	July '48	Greenville
Pittsburg & Shawmut	200	Hopper	100,000	33	0	Steel	39,700	April	December	Pressed Steel
Pittsburgh & West Virginia	25	Cov. Hopper	140,000	28	3⅝	Steel	49,900	November	May '48	Greenville
Port Huron & Detroit	2	Caboose	.....	27	0	Steel	60,000	September	March '48	Intl. Ry. Car
Reading	1,000	D.S. Box	100,000	40	6	Steel	46,600	July	1st half '48	Amer. Car & Fdy.
St. Louis-San Francisco	300	Box	100,000	40	6	Steel	45,500	1947	1948	Pullman-Standard
	500	Hopper	110,000	33	0	Steel	43,000	1947	1948	Pullman-Standard
	200	Cov. Hopper	140,000	29	3	Steel	53,300	1947	1948	Pressed Steel
	300	Hopper	110,000	33	0	Steel	43,000	1947	1948	Pressed Steel
Savannah & Atlanta	50	D.S. Box	80,000	40	6	Steel	40,000	September	July '48	Pullman-Standard
Seaboard Air Line	175	Phosphate	140,000	34	9	Steel	51,420	January	Nov.-Dec.	Pullman-Standard
	500	Box	100,000	40	6	Steel	.....	January	1948	Pullman-Standard
	300	Hopper	140,000	40	8	Steel	45,980	March	1948	Pullman-Standard
	100	Gondola	100,000	41	6	Steel	40,400	September	.....	Amer. Car & Fdy.
	300	Gondola	100,000	41	6	Steel	42,000	September	.....	Amer. Car & Fdy.
	300	Hopper	140,000	40	8	Steel Frame	.....	September	2nd qtr. '48	Bethlehem
	500	Auto	100,000	40	6	.....	.....	September	.....	Pressed Steel
Southern	3,000	S.S. Box	100,000	40	6	Steel	.....	March	1st half '48	Pullman-Standard
	1,000	Hopper	100,000	33	0	Steel	.....	March	2nd qtr. '48	Amer. Car & Fdy.
	**150	Cement	140,000	29	3	Steel	.....	March	Jan. '48	Pullman-Standard
Southern Pacific	1,500	S.S. Box	100,000	40	6	Low Alloy—H.S.	40,500	March	1947-48	Pullman-Standard
	1,500	S.S. Box	100,000	40	6	Low Alloy—H.S.	40,500	March	1948	Amer. Car & Fdy.
	500	Auto	100,000	40	6	Steel	49,700	March	Nov.-Dec.	Pressed Steel
	1,500	Gondola	100,000	41	0	Composite	50,000	March	1947-48	Pressed Steel
	500	Gondola	100,000	41	6	Composite	42,700	March	Nov.-Dec.	Ralston
	100	Cov. Hopper	140,000	29	3	Steel	53,300	March	1948	General American
	500	Flat	140,000	53	6	Steel	60,100	March	1948	Amer. Car & Fdy.
	100	Sulphur	140,000	40	1	Composite	56,300	April	1947	T. & N. O. Shops
Spokane, Portland & Seattle	500	D.S. Box	100,000	50	0	Steel	.....	December	March '49	N. P. Ry. Shops
	20	Tank	16,000g.	..	.	Steel	.....	December	March '49	General American
Tennessee Central	100	Hopper	100,000	33	0	Steel	40,000	August	April '48	Amer. Car & Fdy.
Union Pacific	400	Hopper	140,000	..	.	Steel	.....	May	1st qtr. '48	General American
	1,600	Box	100,000	..	.	Steel	.....	August	1st qtr. '48	Pullman-Standard
	1,950	Hopper	140,000	..	.	Steel	.....	November	3rd qtr. '48	Pressed Steel
Union Railroad	363	Gondola	100,000	41	5⅞	Steel	46,400	May	1947	Greenville
Virginian	500	Hopper	110,000	33	0	Steel	41,000	February	November	R. R. Shops
	500	Hopper	110,000	33	0	Steel	42,200	August	Jan. '48	R. R. Shops
	500	Hopper	110,000	33	0	Steel	41,000	February	March '48	R. R. Shops
	500	Hopper	110,000	33	0	Steel	40,200	November	Aug. '48	R. R. Shops
	500	Hopper	110,000	33	0	Steel	40,200	December	Oct. '48	R. R. Shops
	500	Gondola	110,000	41	6	Steel	45,000	November	Dec. '48	R. R. Shops
Wabash	600	D.S. Box	100,000	40	6	Steel	.....	May	1948	R. R. Shops
	118	Hopper	100,000	30	6	Steel	.....	June	December	R. R. Shops
	200	Hopper	100,000	30	6	Steel	.....	September	1st qtr. '48	R. R. Shops
	233	D.S. Box	80,000	40	6	Steel	.....	September	December	R. R. Shops
	500	Box	100,000	40	6	Steel	44,800	February	.....	Amer. Car & Fdy.
	50	Gondola	140,000	65	6	Steel	59,100	November	.....	Pressed Steel
Western Maryland	1,000	Hopper	110,000	31	0	Steel	41,000	September	April '48	Bethlehem
Wheeling & Lake Erie	250	S.S. Box	100,000	40	6	Steel	45,200	February	1948	Amer. Car & Fdy.
	1,000	Hopper	140,000	40	8	Steel	49,600	February	3rd qtr. '47	Greenville
	2	Air Dump	.....	29	6	Steel	59,400	February	September	Ralston
	1,000	Hopper	140,000	40	8	Steel	50,400	July	1948	Ralston
	1,000	Hopper	140,000	40	8	Steel	50,400	September	1948	Ralston
	12	Cov. Hopper	140,000	26	3⅝	Steel	52,800	October	2nd qtr. '48	General American

* Not listed last year.
** Originally ordered from Harlan & Hollingsworth Corp. in April 1946.

Private Car Lines and Other Orders—For Service in the United States

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of Order	Date of Delivery	Builder
R. J. Allison Co.	2	Tank	10,500g.	..	..	.....	.....	February	April '48	General American
	2	Tank	10,500g.	..	..	.....	.....	October	Nov. '48	General American
Aluminum Co. of America	6	Flat	140,000	39	0	Steel	50,800	February	.....	Pressed Steel
American Steel & Wire Co.	30	Hopper	140,000	40	8	Steel	50,700	April	Jan. '48	Greenville
Ansul Chemical Co.	2	Tank	80,000	..	.	.....	.....	March	.....	General American
Armour Car Lines	1,000	Refrig.	80,000	40	3⅝	Steel	56,000	June	2nd qtr. '48	Amer. Car. & Fdy.
	1,000	Refrig.	80,000	34	5	.....	56,000	June	2nd qtr. '48	General American

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of Order	Date of Delivery	Builder
Atlas Powder Co.	4	Tank	140,000	33	8⅝	Steel	45,000	October	.....	Amer. Car. & Fdy.
Bay Chemical Co. ..	2	Tank	100,000	34	1⅛	Steel	42,000	April	.....	Amer. Car. & Fdy.
	10	Tank	8,000g.	..	..	.....	.....	April	July '48	General American
Belle Alkali Co	1	Tank	80,000	34	1⅛	Steel	42,000	May	.....	Amer. Car & Fdy.
Bethlehem Steel Co. ..	65	Flat	140,000	36	0	Steel	.....	October	April '48	Bethlehem
	100	Gondola	140,000	46	4	Steel	.....	October	March '48	Bethlehem
Bonne Terre F. & C. Co.	200	Mine	.....	23	5½	.....	.....	June	.....	Pressed Steel
Buffalo Electro-chemical Co.	2	Tank	4,000g.	..	..	.....	.....	February	March '48	General American
Butane Eng. Co.	4	Tank	100,000	35	2⅞	Steel	68,000	August	.....	Amer. Car & Fdy.
California Dispatch Line	10	Tank	10,000g.	..	..	.....	.....	January	Feb. '48	General American
Cities Fuel Exchange .	2	Tank	12,500g.	..	..	.....	.....	May	July '48	General American
Cities Service Oil Co. of Delaware	65	Tank	10,500g.	..	..	Steel	.....	March	March '48	General American
	50	Tank	10,500g.	..	..	Steel	.....	October	Dec. '48	General American
Coastal Natural Gas Co.	2	Tank	80,000	35	2⅞	Steel	66,700	February	.....	Amer. Car & Fdy.
Columbia Steel Co. ...	45	Gondola	140,000	40	0	Steel	54,800	October	.....	Pressed Steel
Conservative Gas Co. .	25	Tank	100,000	35	2⅞	Steel	68,000	November	.....	Amer. Car & Fdy.
Consolidated Chem. Co.	25	Tank	12,000g.	..	..	.....	.....	April	May '48	General American
Cons. Chem. Industries	7	Tank	100,000	29	7½	Steel	42,700	January	.....	Amer. Car & Fdy.
	1	Tank	200,000	37	10⅝	Steel	62,700	January	.....	Amer. Car & Fdy.
Cornwell Chemical Corp.	2	Tank	8,000g.	..	..			October	Dec. '48	General American
Cudahy Car Lines ..	200	Refrig.	80,000	37	5	S. U.	56,000	April	1948	Company Shops
Detroit Chemical Works	2	Tank	8,000g.	..	..	.....	.....	March	June '48	General American
Dow Chem. Co.	10	Tank	80,000	..	..	.....	.....	September	1948	General American
	1	Tank	100,000	31	⅞	Steel	48,000	March	.....	Amer. Car & Fdy.
	1	Tank	80,000	25	11	Steel	40,000	May	.....	Amer. Car & Fdy.
	1	Tank	2,300g.	..	..	.....	.....	October	Nov. '48	General American
	1	Tank	10,000g.	..	..	.....	.....	November	Jan. '48	General American
Electro-Metallurgical Co.	10	Cov. Hopper	140,000	29	3	Steel	52,000	July	.....	Amer. Car & Fdy.
	4	Ore	150,000	19	10⅞	Steel	45,400	July	.....	Pressed Steel
Ethyl Corp.	12	Tank	6,000g.	..	..	.....	.....	November	1st qtr. '49	General American
	30	Tank	3,000g.	..	..	.....	.....	November	1st qtr. '49	General American
Fruit Growers Express	1,000	Refrig.	80,000	40	0	.....	55,000	April-August	1947-48	Company Shops
Fuelane Corp.	6	Tank	80,000	35	2⅞	Steel	66,500	June	.....	Amer. Car & Fdy.
General Automatic Gas Co.	10	Tank	100,000	35	2⅞	Steel	68,000	November	.....	Amer. Car & Fdy.
General Chem. Co. ..	52	Tank	100,000	29	11	Steel	50,000	May	.....	Amer. Car & Fdy.
	26	S.M.U. Tank	80,000	42	4⅛	Steel	35,500	October	.....	Amer. Car & Fdy.
	5	Tank	58,000	..	..	.....	.....	Dec. '46*	Feb. '48	General American
	20	Tank	76,000	..	..	.....	.....	Dec. '46*	Feb. '48	General American
	5	Tank	94,000	..	..	.....	.....	Dec. '46*	Feb. '48	General American
	3	Tank	11,200g.	..	..	.....	.....	March	April '48	General American
	63	Tank	9,850g.	..	..	.....	.....	May	3rd qtr. '48	General American
	8	Tank	7,250g.	..	..	.....	.....	October	Nov. '48	General American
General Electric Co. ..	7	Cov. Hopper	140,000	29	3	Steel	51,800	August	3rd qtr. '48	General American
	1	Tank	10,000g.	..	..	.....	.....	August	Sept. '48	General American
Great Bear Spring Co.	1	Tank	80,000	33	8⅝	Steel	51,300	November	.....	Amer. Car & Fdy.
Kennecott Copper Co.	40	Air Dump	160,000	37	6	H.S. Steel	89,000	November	.....	Pressed Steel
L.C.L. Corp.	15	Gondola	140,000	46	10	Steel	40,000	February	.....	Amer. Car & Fdy.
Lone Star Producing Co.	40	Tank	10,000g.	..	..	Steel	.....	May	April '48	Amer. Car & Fdy.
Merchants Despatch Transportation Corp.	500	Refrig..	80,000	33	2¾	Steel	60,000	June	March '48	Despatch Shops
Missouri Portland Cement Co.	50	Hopper	140,000	38	6	Steel	47,200	June	.....	Amer. Car & Fdy.
Monsanto Chem. Co. .	5	Tank	80,000	34	1⅛	Steel	45,000	March	.....	Amer. Car & Fdy.
	1	Tank	80,000	34	1	Steel	36,600	April	.....	Amer. Car & Fdy.
	14	Tank	8,000g.	..	..	.....	.....	January	Feb. '48	General American
	7	Tank	7,000g.	..	..	.....	.....	March	April '48	General American
	2	Tank	8,000g.	..	..	.....	.....	April	Jan. '48	General American
	7	Tank	8,280g.	..	..	.....	.....	April	1947-48	General American
	4	Tank	7,000g.	..	..	.....	.....	June	Aug. '48	General American
	1	Tank	8,000g.	..	..	.....	.....	June	Aug. '48	General American
Northern States Pr. Co.	4	Hopper	140,000	38	6	Steel	47,200	July	.....	Amer. Car & Fdy.
Pacific Gas Corp.	50	Tank	80,000	35	2⅞	Steel	68,000	April	.....	Amer. Car & Fdy.
Peoples Gas, Light & Coke Co.	10	Hopper	140,000	40	8	Steel	.....	August	1948	Pullman-Standard
Pittsburgh Steel Co. ..	4	Gondola	140,000	32	6	Steel	61,500	June	.....	Pressed Steel
	30	Air Dump	100,000	34	0	Steel	73,000	December	.....	Pressed Steel
	15	Hopper	140,000	42	8	Steel	45,800	December	.....	Pressed Steel
Procter & Gamble Co.	11	Tank	10,500g.	..	..	.....	.....	Nov. '46*	1947-48	General American
Rural Natural Gas Co.	4	Tank	100,000	35	2⅞	Steel	68,000	November	.....	Amer. Car & Fdy.
Ryan Ruralgas Co. ...	4	Tank	80,000	35	2⅞	Steel	66,200	March	.....	Amer. Car & Fdy.
Shawinigan Products Co.	2	Tank	80,000	..	.	.....	.....	February	.....	General American
Shell Chemical Corp. .	39	Tank	11,000g.	..	..	Welded Steel	.....	February	Feb. '48	General American
	36	Tank	8,000g.	..	..	Welded Steel	.....	July	Jan. '48	Amer. Car & Fdy.
Shippers' Car Line Corp.	1	Cov. Hopper	140,000	29	3	Steel	52,000	January	.....	Amer. Car & Fdy.
	5	Tank	80,000	29	6	Steel	41,500	January	.....	Amer. Car & Fdy.
	70	S. S. Box	140,000	40	6 1/16	Steel	50,500	February	.....	Amer. Car & Fdy.
	7	Tank	100,000	30	10⅛	Steel	45,000	February	.....	Amer. Car & Fdy.
	2	Tank	140,000	38	10¼	Steel	85,000	February	.....	Amer. Car & Fdy.
	3	Tank	100,000	34	1⅛	Steel	44,000	February	.....	Amer. Car & Fdy.
	153	Cov. Hopper	140,000	29	3	Steel	52,600	March	.....	Amer. Car & Fdy.
	3	Tank	80,000	23	10½	Alloy	32,000	February	.....	Amer. Car & Fdy.
	10	Tank	80,000	25	2⅛	Steel	39,800	March	.....	Amer. Car & Fdy.
	50	Tank	100,000	33	3⅛	Steel	42,500	April	.....	Amer. Car & Fdy.
	16	Tank	140,000	33	5¼	Steel	62,000	April	.....	Amer. Car & Fdy.
	1	Tank	100,000	33	8⅝	Steel	56,000	April	.....	Amer. Car & Fdy.
	100	Tank	100,000	35	2⅞	Steel	66,500	April	.....	Amer. Car & Fdy.
	40	Tank	100,000	33	3⅛	Steel	42,500	April	.....	Amer. Car & Fdy.
	10	Tank	80,000	25	2⅛	Steel	34,000	April	.....	Amer. Car & Fdy.
	10	Tank	100,000	33	6¾	Steel	51,500	April	.....	Amer. Car & Fdy.
	1	Tank	80,000	30	7	Steel	61,000	May	.....	Amer. Car & Fdy.
	13	Tank	140,000	37	4	Steel	81,500	May	.....	Amer. Car & Fdy.
	100	Tank	100,000	35	2⅞	Steel	68,500	June	.....	Amer. Car & Fdy.
	10	M. U. Tank	80,000	42	4⅛	Steel	53,500	September	.....	Amer. Car & Fdy.
	40	Tank	100,000	33	3⅛	Steel	42,500	October	.....	Amer. Car & Fdy.
	236	Tank	100,000	..	.	Steel	.....	November	.....	Amer. Car & Fdy.

Purchaser	No.	Class	Seating Capacity	Length ft.	Length in.	Construction	Weight	Date of Order	Date of Delivery	Builder
Solvay Process Co. ..	15	Tank	140,000	37	4	Steel	81,500	January	December	Amer. Car & Fdy.
	10	Tank	80,000	42	4⅛	Steel	.....	April-Nov.	.....	Amer. Car & Fdy.
	5	Tank	110,000	..	..	.....	.....	Dec. '46*	Feb. '48	General American
Southern Alkali Corp.	3	Tank	30,000	..	..	.....	.....	February	Feb. '48	General American
Southern Pacific Eq. Co.	1,500	S. S. Box	100,000	40	6 1/10	Steel	41,600	February	.....	Amer. Car & Fdy.
	500	Flat	140,000	53	6	Steel	60,100	March	.....	Amer. Car & Fdy.
	1,000	Hopper	100,000	33	0	Steel	40,000	March	.....	Amer. Car & Fdy.
Stauffer Chemical Co. .	5	Tank	9,800g.	..	..	.....	.....	March	April '48	General American
	5	Tank	7,000g.	..	..	.....	.....	March	April '48	General American
	3	Tank	7,000g.	..	..	.....	.....	April	June '48	General American
	2	Tank	9,800	..	..	.....	.....	April	June '48	General American
Sun Oil Co.	100	Tank	100,000	38	9½	Steel	67,000	April	December	Amer. Car & Fdy.
Tank Gas Corp.	1	Tank	100,000	35	2⅞	Steel	68,000	July	.....	Amer. Car & Fdy.
Tide Water Associated Oil Co.	5	Tank	10,000g.	35	2⅞	Steel	87,000	July	2nd qtr. '48	Amer. Car & Fdy.
Union Starch & Refining Co.	2	Tank	8,000g.	..	..	.....	.....	March	March '48	General American
Union Tank Car Co.	1,200	Tank	100,000	30	8½	Steel	51,000	April	.....	Amer. Car & Fdy.
	1,300	Tank	100,000	38	10¾	Steel	71,000	April	.....	Amer. Car & Fdy.
	500	Tank	100,000	..	..	.....	72,800	April	1st half '48	Amer. Car & Fdy.
Utilities Distributors, Inc.	7	Tank	80,000	35	2⅞	Steel	66,200	February	.....	Amer. Car & Fdy.
Virginia Smelting Co.	2	Tank	80,000	30	7	Steel	54,000	May	.....	Amer. Car & Fdy.
Warren Petroleum Corp.	200	Tank	100,000	35	2⅞	Steel	71,600	October	.....	Amer. Car & Fdy.
	400	Tank	100,000	35	2⅞	Steel	69,100	October	.....	Amer. Car & Fdy.
Weirton Steel Co. ...	15	Tank	7,000g.	..	..	.....	.....	October	Nov. '48	General American
Western Fruit Express	400	Refrig.	80,000	40	0	.....	56,000	June	1st qtr. '48	Amer. Car & Fdy.
Wilson Car Lines	100	Refrig.	75,000	29	6	Steel	56,000	November	.....	Company Shops

*Not listed last year.

United States—Export

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of Order	Date of Delivery	Builder
American Smelting & Refining Co. (Mexico)	150	Gondola	100,000	40	0	Steel	48,000	September	April '48	Magor
Balfour, Guthrie & Co.	2	Tank	60,000	30	1¾	Steel	30,325	April	.....	Amer. Car & Fdy.
Brazil Export Corp. ..	1	Tank	10,290g.	..	..	.....	.....	February	Jan. '48	General American
California - Texas Oil Co.	63	Tank	8,000g.	..	..	.....	.....	April	1948	General American
Canadian General Transit Co.	23	Tank	110,000	..	..	.....	.....	April	March '48	General American
	4	Tank	7,000g.	..	..	.....	.....	May	March '48	General American
	9	Tank	11,200g.	..	..	.....	.....	July	Aug. '48	General American
	2	Tank	7,000	..	..	.....	.....	May	March '48	General American
Estrado de Ferro Central do Brazil ..	50	Air Dump	100,000	29	8	Steel	67,678	May	Feb. '48	Magor
	30	Air Dump	60,000	23	9	Steel	42,815	May	Feb. '48	Magor
W. R. Grace & Co. ..	50	Cane	22,100	18	10	Steel	8,400	May	.....	Amer. Car & Fdy.
Imperial Oil Co.	21	Tank	60,000	29	1 7/10	Steel	32,100	April	.....	Amer. Car & Fdy.
	2	Tank	60,000	31	3	Steel	42,500	November	.....	Amer. Car & Fdy.
Iron Mines Co. of Venezuela	80	Ore	140,000	..	..	.....	.....	February	.....	Bethlehem
Paulista Ry. (Brazil)	1,000	Box	80,000	40	6	Steel	.....	January	.....	Pullman-Standard
Petroleos Mexicanos ..	4	Gondola	100,000	41	6	Steel	42,000	November	.....	Amer. Car & Fdy.
Standard Oil Co. of N. J.	2	Tank	7,500g.	..	..	.....	.....	Dec. '46*	March '48	General American
	50	Tank	11,900g.	..	..	.....	.....	January	June '48	General American
	2	Tank	8,000g.	..	..	.....	.....	January	Jan. '48	General American
	2	Tank	8,000g.	..	..	.....	.....	August	Oct. '48	General American
	2	Tank	10,500	..	..	.....	.....	September	Nov. '48	General American
Texas Co.	4	Tank	7,500g.	..	..	.....	.....	April	April '48	General American
	5	Tank	12,000g.	..	..	.....	.....	April	April '48	General American
	2	Tank	8,000g.	..	..	.....	.....	May	Feb. '48	General American
	3	Tank	6,000g.	..	..	.....	.....	June	July '48	General American

*Not listed last year

Canada

Purchaser	No.	Class	Capacity	Length ft.	Length in.	Construction	Weight	Date of Order	Date of Delivery	Builder
Algoma Central & Hudson Bay	350	Gondola	140,000	48	6¼	Steel	42,100	January	October	National Steel Car
Canadian General Transit Co.	50	Tank	100,000	32	0	Steel	48,000	.....	June	Canadian Car & Fdy.
Canadian Pacific	250	Hopper	140,000	40	8	Steel	48,000	February	August	Eastern Car
	50	Caboose	80,000	28	4	Steel Center Sills	39,500	February	November	R. R. Shops
	1,750	S. S. Box	100,000	40	6	Steel	45,000	February	December	Canadian Car & Fdy.
	750	S. S. Box	100,000	40	6	Steel	45,000	February	December	National Steel Car
	120	Auto	100,000	40	6	Steel	50,800	March	1948	National Steel Car
	325	Tank-Refrig.	100,000	40	0	Steel	64,000	March	1948	National Steel Car
	100	Cov. Hopper	140,000	36	0	Steel	52,000	August	1948	National Steel Car
	750	S. S. Box	100,000	40	6	Steel	45,000	August	1948	National Steel Car
	175	Tank-Refrig.	100,000	40	6	Steel	64,000	August	1948	National Steel Car
	250	Hopper	140,000	40	8	Steel	48,000	August	1948	Eastern Car
	30	Caboose	80,000	28	4	Steel Center Sills	39,500	July	1948	R. R. Shops
Cumberland Ry. & Coal Co.	3	Flat	120,000	40	6	Steel	46,000	June	September	Eastern Car
Ontario Northland	430	Box	80,000	40	6	Steel	.....	November	Aug. '48	National Steel Car
Pacific Great Eastern	75	S. S. Box	100,000	40	6	Steel	.....	March	December	Canadian Car & Fdy.
Roberval & Saguenay .	30	Hopper	140,000	40	8	Composite	38,000	September	May '48	Eastern Car
Sydney & Louisburg ..	15	Flat	120,000	45	7	Steel	46,000	June	September	Eastern Car

Number and Classification of Freight Cars Ordered for Domestic Use

Year	Box	Flat	Stock	Gondola	Hopper	Tank	Refrig.	Others	Non-Rev.	Total
1947	41,250	1,621	600	13,653	48,191	5,828	4,200	3,945	246	119,534
1946	30,500	1,173	0	4,577	15,511	4,855	9,753	153	201	66,723
1945	15,440	1,241	0	5,727	12,960	915	1,085	174	201	37,882
1944	31,066	823	300	6,758	12,674	972	1,465	371	52	54,481
1943	10,027	2,212	0	5,312	18,400	556	50	153	320	37,030
1942	2,351	2,300	0	9,711	10,197	2,716	0	1,285	0	28,560
1941	55,939	3,459	400	15,814	23,213	2,800	2,370	1,614	1,288	106,897
1940	35,530	885	350	9,654	14,446	1,671	785	1,965	542	65,828
1939	20,140	976	100	6,419	21,923	2,373	675	1,127	182	53,915
1938	7,912	931	568	4,279	2,017	230	0	299	134	16,370
1937	20,564	1,365	500	10,120	12,817	692	1,770	287	1,827	49,942
1936	21,866	1,224	453	8,782	22,271	5,745	7,495	100	1,812	69,748
1935	8,925	75	50	2,755	5,970	313	600	32	29	18,749
1934	9,231	1,656	0	2,077	10,460	341	198	0	3	24,566
1933	619	50	0	4	33	269	615	129	1	1,720
1932	1,290	11	0	270	150	52	137	9	32	1,951
1931	2,100	400	750	1,072	3,113	261	2,314	28	159	10,197
1930	17,012	2,046	950	9,900	4,036	2,920	5,689	384	468	43,405
1929	57,139	3,888	2,950	18,289	16,117	4,446	3,583	789	2,940	110,141
1928	21,148	3,709	906	6,495	6,087	2,585	5,568	280	1,376	48,154
1927	28,975	2,694	1,668	13,735	11,835	5,930	4,432	1,067	2,655	72,991
1926	18,277	1,819	2,556	8,366	11,483	4,096	10,109	2,188	2,676	61,570
1925	40,668	2,720	2,749	21,869	6,448	4,701	5,308	802	1,320	86,585
1924	68,282	4,021	6,504	23,603	21,350	3,474	14,347	2,274	1,761	145,616
1923	35,286	2,904	714	16,318	23,883	6,003	6,207	2,448	1,846	95,609
1922	68,767	2,800	4,236	31,742	36,223	5,795	22,587	4,385	1,675	178,210
1921	5,130	292	630	5,427	4,708	327	4,905	1,048	298	22,765
1920	14,470	1,417	3,435	10,080	23,142	15,631	8,785	1,724	1,456	80,140

Source: 1947—*Railway Age;* all other—American Railway Car Institute.

RAILROADS' FINANCIAL POSITION BRIGHTENS

(*Continued from page 204*)

ment date against the installment of the P. & W.'s bond interest payable by the road, or, in the event of redemption of said bonds, to apply any unexpended balance of such premium to the payment of any redemption premium thereon.

In May the PENNSYLVANIA and DELAWARE & HUDSON were authorized by the I. C. C. to assume joint liability as guarantors of $2,186,000 of Wilkes-Barre Connecting Series B first and improvement-mortgage 3 per cent bonds, which the commission, in the same proceeding, authorized the latter road to issue. The bonds will be due May 1, 1967, and will be delivered in equal proportions to the P. R. R. and D. & H. in exchange for a like amount of Connecting's Series A first and improvement mortgage bonds.

In May the SOUTHERN PACIFIC was authorized by the I. C. C. to issue $22,500,000 of San Francisco Terminal Series A first-mortgage bonds, the proceeds of which were applied toward the redemption of $24,767,600 of outstanding San Francisco Terminal first-mortgage 4 per cent bonds, due April 1, 1950. The new issue will mature June 1, 1975. The bonds were sold to Kuhn, Loeb & Co. and associates at 99.30 with a 3⅜ per cent interest rate, with the average annual cost approximately 3.41 per cent.

In August the TENNESSEE CENTRAL was authorized by the I. C. C. to issue $400,000 in first-mortgage Series A 4 per cent bonds, the proceeds of which would be applied toward reimbursing the applicant for expenditures between June, 1942, and December, 1946. The bonds, issued under a mortgage dated April 1, 1937, would be due April 1, 1967.

DIVIDEND CHANGES

The AKRON, CANTON & YOUNGSTOWN declared an initial dividend of 50 cents per share on the common stock, payable in April, 1947. In September, 1947, this road declared a special dividend of 50 cents a share on the common stock, payable in October, 1947.

The ALABAMA GREAT SOUTHERN increased its payments on both its common and its 6 per cent preferred stock, paying $6.50 on these in 1947 and $5.00 in 1946.

The ATLANTA & WEST POINT reduced its dividend from $4.00 in 1946 to $2.00 in 1947.

The CHESAPEAKE & OHIO paid an initial dividend of 87½ cents a share on the new 3½ per cent convertible preferred stock, in 1947. This road also paid a stock dividend of 1/40 of a share of the New York, Chicago & St. Louis stock for each share of common in 1947.

The CHICAGO & NORTH WESTERN paid $2.50 on its 5 per cent Series A preferred stock in 1947 compared with $5.00 in dividends on this stock in 1946.

The CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC paid $7.50 in dividends on its 5 per cent preferred Series A stock in 1947 compared with $5.00 in 1946.

The CINCINNATI, NEW ORLEANS & TEXAS PACIFIC increased its dividend payment by $4.00 in 1947, disbursing $6.00 in that year, compared with $2.00 in 1946.

The DENVER & RIO GRANDE WESTERN declared a $5.00 dividend on its preferred stock, payable in 1947. This was the first paid since 1911 and represents a 50 per cent payment on the accrued dividends for the years 1943-44-45-46.

The ERIE & KALAMAZOO paid $3.25 in dividends on its common stock in 1947 compared with $3.00 in 1946.

The LAKE SUPERIOR & ISHPEMING declared dividends of $1.25 per share on its common stock in 1947.

The MINNEAPOLIS & ST. LOUIS paid dividends of $1.00 per share on its capital stock, recently split 4-for-1, in 1947. The last payment on the old stock was $1.00 in 1946.

The MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE paid $1.00 in dividends on its common Series A voting trust certificates in 1947 compared with an initial dividend of $2.50 in 1946. The road also disbursed an initial payment of 25 cents on new common stock in March of 1947.

The NASHVILLE, CHATTANOOGA & ST. LOUIS took no action on a dividend in 1947. A dividend of $1.00 was paid in 1946.

The NEW YORK, CHICAGO & ST. LOUIS declared $6.50 in dividends per share on its 6 per cent preferred stock in 1947, compared with a disbursement of $6.00 on this stock in 1946. Arrears on this issue total $84 a share.

The NORFOLK & WESTERN declared an initial dividend of 25 cents per share on its 4 per cent adjustment preferred stock in October 1947, which recently was split 4-for-1. This road also paid dividends of $1.75 per share on its new common stock, recently split 4-for-1, in 1947.

The PERE MARQUETTE paid a dividend of $1.25 per share on its 5 per cent prior preferred stock compared with the last disbursement of $11.25 per share in 1937. Arrears totaled $36.25 per share.

The PITTSBURGH & LAKE ERIE paid $6.00 in dividends in 1947 compared with $3.50 in 1946.

The SARATOGA & SCHENECTADY paid $5.00 in dividends on its common stock in 1947 compared with a disbursement of $4.00 in 1946.

The SEABOARD AIR LINE paid an initial dividend of $2.50 per share on its 5 per cent preferred Series A stock in June 1947.

The TENNESSEE, ALABAMA & GEORGIA resumed payment on its capital stock disbursing 35 cents in 1947. The last dividend paid was 35 cents in 1945.

The TENNESSEE CENTRAL voted to take no action on the dividend due on its 7 per cent preferred stock in 1947. A dividend of $3.50 was paid in 1946.

The TEXAS & PACIFIC reduced its dividend on its common stock from $4.00 in 1946 to $3.00 in 1947.

The WESTERN OF ALABAMA paid $2.00 on its capital stock in 1947 compared with $5.00 in 1946.

The UNION PACIFIC declared dividends of $10.00 on its common stock in 1947 compared with $6.00 in 1946.

SIGNALING CONSTRUCTION AT HIGH LEVEL

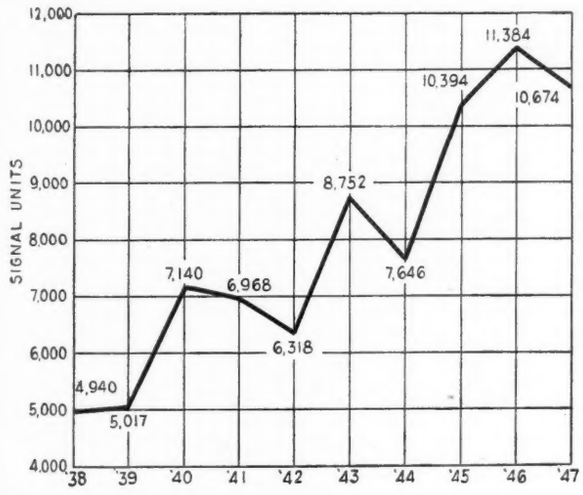
Increases over 1946 were shown in installations of centralized traffic control and grade-crossing protection; bigger expenditures due in next five years

By JOHN H. DUNN
Signaling and Communications Editor

During 1947 the railroads in the United States and Canada installed a total of 10,674 signaling units, which is less than the 11,384 units for 1946. Reductions were shown in automatic block and interlockings, but increases were made in centralized traffic control and highway crossing protection. As explained in an article in the Review and Outlook section of this issue, the construction of signaling is due for a large increase throughout the next several years.

An accompanying table of automatic signal installations completed in 1947 omits several of the smaller projects, but the totals of the table include the units involved in these minor installations. A big increase was made in the construction of centralized traffic control in 1947, the total being 1,447 track miles including 3,747 power switches and signals, compared with 1,142 track miles and 2,615 switches and signals in 1946.

The construction of new interlockings took a big drop in 1947, a total of 1,338 interlocked switches and signals being installed in interlockings in 1947, compared with 2,360 in 1946. Of the 85 new interlockings installed last year, 13 are automatic, 2 are controlled by machines including mechanical locking between levers, and 65 are the all-relay type, controlled by machines including



Spring Switches Installed During 1947

Railroad	Total Number of Spring Switches Installed	Location	Total Number Equipped With Facing-Point Lock	Signal Protection
A.T. & S. F.	87	83S	1	82
		1J		
		3Y		
A. & W.P.	4	4S	4	4
A.C.L.	13	13S	13	.
B. & O.	5	5S	.	14
B. & M.	1	1D	.	2
C.N.	5	5S	.	8
C.P.	3	3Y	3	9
C. of N.J.	4	4D	.	4
C. & O.	16	14S	16	16
		2D		
C. & E.I.	3	2D	3	7
		1Y		
C. & I.M.	1	1S	.	3
C. & N.W.	1	1S	.	2
C.B. & Q.	.	.	1	1
C.M.St.P. & P.	5	5S	5	9
C.S.S. & S.B.	1	1Y	.	1
D.L. & W.	2	2S	2	4
D. & R.G.W.	20	6S	6	60
		14D		
D.M. & I.R.	2	2Y	.	.
E.J. & E.	1	1S	.	1
G.N.	14	11S	12	45
		1J		
		2Y		
I.C.	11	10S	.	14
		1Y		
L.S. & I.	1	1Y	.	3
L.V.	2	2J	.	4
L. & N.	29	27S	.	38
		1D		
		1J		
M. & St. L.	5	5S	5	15
M.St.P. & S.S.M.	4	3S	4	6
		1D		
M-K-T	15	14S	.	4
		1J		
M.P.	4	4S	3	10
N.Y.C.	2	1S	2	2
		1D		
N.Y.C. & St. L.	1	1S	1	2
N.Y.C. & W.	4	4S	.	4
N.P.	6	4S	4	16
		1D		
		1J		
Reading	2	1S	2	4
		1D		
St.L.-S.F.	27	21S	4	23
		2J		
		4Y		
Southern	17	13S	.	26
		4J		
S.P.	20	20S	15	30
T. & P.	12	11S	.	12
		1Y		
U.P.	5	5S	.	5
Virginian	1	1S	1	1
Totals	356		107	491

296 Sidings
28 Ends of Double Track
13 Junctions
19 Yard Tracks

New Interlockings Placed in Service in 1947

Railroad and Location	Number of Home Signals	Number of Switch Machines	Manufacturer
A.T. & S.F.			
Ancona, Ill.	5	5	Union
Morris, Kan.	8	10	Union
Eldorado, Kan.	10	10	Union
Melvern, Kan.	7	1	Union
Upland, Cal.	4	.	Union
Golden, Cal.	2	.	Union
B. & O.			
Philadelphia, Pa.	13	16	G.R.S.
Mitchell, Ind.	6	2	G.R.S.
Baltimore, Md.	7	.	G.R.S.
B. & M.			
South Lowell, Mass.	3	1	G.R.S.
Lowell, Mass.	14	4	G.R.S.
Brunswick, Me.	4	.	G.R.S.
C.P.			
Leaside, Ont.	13	9	G.R.S.
Rugby, Man.	35	36	G.R.S.
C. & O.			
Stevens, Ky.	10	7	Union
C. & E. I.			
Danville, Ill.	27	7	Union
C. & N.W.			
Marshfield, Wis.	8	.	G.R.S.
Vale, Ill.	6	.	G.R.S.
Proviso, Ill.	3	.	G.R.S.
C.B. & Q.			
Cushman Jct., Neb.	19	10	G.R.S.
Birmingham, Mo.	12	5	G.R.S.
Afton, Iowa	3	1	.....
C.R.I. & P.			
Davenport, Iowa	11	3	Union
C. & S.			
Denver, Colo.	6	6	G.R.S.
E.J. & E.			
South Chicago, Ill.	5	8	G.R.S.
I.C.			
Central City, Ky.	4	4	Union
Martin, Tenn.	6	.	Union
Baton Rouge, La.	5	1	Union
Woodstock, Tenn.	7	3	G.R.S.
Gilman, Ill.	32	13	G.R.S.
L.V.			
Lansdown, N. J.	8	5	G.R.S.
Pattenburg, N. J.	4	2	G.R.S.
L. & N.			
Henderson, Ky.	14	4	G.R.S.
M.P.			
Bald Knob, Ark.	8	5	G.R.S.
Kansas City, Mo.	3	1	G.R.S.
N.Y.C.			
Crestwood, N. Y.	28	14	G.R.S.
Ashtabula, Ohio	10	10	G.R.S.
North East, Pa.	8	10	G.R.S.
C.C.C. & St.L.			
Camp Chase, Ohio	3	1	G.R.S.
East Galloway, Ohio	3	1	G.R.S.
West Galloway, Ohio	3	1	G.R.S.
Lilly Chapel, Ohio	3	.	G.R.S.
East London, Ohio	3	1	G.R.S.
Meyers, Ohio	3	.	G.R.S.
East Brooks, Ohio	3	1	G.R.S.
West Brooks, Ohio	3	1	G.R.S.
N.Y.C. & St. L.			
Dunkirk, N. Y.	11	3	G.R.S.
N.Y.N.H. & H.			
New Rochelle, N. Y.	13	34	G.R.S.
N. & W.			
Norfolk, Va.	12	10	Union
	.	2	.....
Penna.			
Liggett, Ill.	5	1	Union
Reading			
Lees Cross Roads, Pa.	5	2	G.R.S.
Tamaqua, Tun., Pa.	6	2	G.R.S.
R.F. & P.			
Hamilton, Va.	3	9	Union
Seminary, Va.	1	1	Union
South Franconia, Va.	3	7	Union
St. L.-S.F.			
Jasper, Ala.	5	1	Union
S.A.L.			
Wildwood, Fla.	10	5	Union
Ocala, Fla.	4	1	Union
Southern			
New River, Tenn.	7	6	G.R.S.
Durmid, Va.	5	3	G.R.S.
U.P.			
Pocatello, Idaho	6	4	Union
St. Johns, Ore.	4	4	Union
Virginian			
Roanoke, Va.	12	8	G.R.S.
W.M.			
Colmar, Pa.	3	1	Union
Conboy, Pa.	3	1	Union
Waynecastle, Pa.	3	1	Union
W. & L.E.			
Spencer, Ohio	5	1	Union
Totals	528	329	

Major Projects of New Automatic Signaling Placed in Service in 1947

Railroad and Location	Miles of Road	Manufacturer
A.T. & S.F.		
Dodge City, Kan.	0.8d	Union
Albuquerque, N. M.	0.7d	Union
A.T. & S.F. and D. & R.G.W. (paired track)		
Bragdon, Colo. to Denver	103.9d	Union G.R.S.
A. & W.P.		
Atlanta, Ga.	2.1d	Union
B. & M.		
Lowell Jct., Mass. to Wamesit	4.1d	G.R.S.
Brunswick, Me. to Gardiner	28.4s	G.R.S.
C.P.		
Cartier, Ont. to Chapleau	136.4s	Union
Squaw Brook, Me. to Jackman	35.4s	G.R.S.
C. of N.J.		
Jersey City, N. J. to Bayonee	5.5f	Union
C. & O.		
BU Cabin, Ky. to Johns Creek	9.0d	Union
Winchester, Ky. to Lexington	17.0s 1.0d	.....
C.M. St. P. & P.		
Marmarth, N. D. to Harlowton, Mont.	340.5s	Union
Belt Jct., Ind. to Preston	6.8s	Union
C.R.I. & P.		
Chico, Tex. to El Reno, Okla.	159.4s	Union
Ainsworth, Iowa to Brighton	17.0s	Union
D.L. & W.		
Washington, N. J. to Slateford, Pa.	19.6s	Union
G.N.		
Grand Forks, N. D. to Surrey	197.2s 2.9	G.R.S.
L. & H.R.		
Andover, N. J. to Sparta	6.2s	G.R.S.
M.K.T.		
Eureka, Tex. to Houston	2.3s	Union
M.P. (I.G.N.)		
Palestine, Tex. to Taylor	143.0s	G.R.S.
N.Y.C.		
Jordan, N. Y. to Port Byron	7.5f	G.R.S.
E. Buffalo, N. Y. to Depew	4.0f	G.R.S.
Lancaster, N. Y. to Dellwood	5.0f	G.R.S.
Mt. Vernon, N. Y. to Crestwood	5.0d	G.R.S.
B. & A.		
Hinsdale, Mass. to Pittsfield	7.3t 1.7d	G.R.S.
C.C.C. & St. L.		
Worthington, Ohio to Columbus	6.7s	G.R.S.
Miami, Ohio to Carney	39.7s	G.R.S.
N.Y.C. & St. L.		
Dunkirk, N. Y. to Brocton	9.0d	Union
Mellott, Ind. to Cayuga	25.0s	Union
N. & W.		
Amonate, W. Va. to Cedar Bluff, Va.	12.0s	Union
N.P.		
Minneapolis, Minn. to Northtown	2.9d	G.R.S.
R.F. & P.		
Franconia, Va. to Seminary	6.0t	Union
Hamilton, Va. to Fredericksburg	3.0f	Union
St. L.-S.F.		
Ada, Okla. to Denison, Tex.	88.5s	Union
Shelco, Tenn. to Nonco	7.5d	Union
Southern		
Lynchburg, Va. to Durmid	1.8s	G.R.S.
Sheffield, Ala. to Furnace	3.0s	G.R.S.
U.P.		
Granger, Wyo. to Donovan	2.2s	Union
Nyssa, Ore.	2.6s	Union
W.M.		
Waynecastle, Pa. to Conboy	5.0s	Union
Colmar, Pa. to Deal	2.5s 3.0d	Union
Total single track	1,313.6	
Total double track	233.5	
Total three track	13.3	
Total four track	35.5	
Total road miles	1,595.9	
Total track miles	1,962.5	

miniature levers or buttons with no mechanical locking, the interlocking being accomplished by interconnections of circuits. Not listed here are 36 interlockings which were rebuilt in 1947, a total of 380 power switches and signals being added.

In 1938 to 1940 inclusive, highway crossing protection was installed at an average of about 1,000 crossings annually. During the war this construction was limited to those few crossings on highways servicing military

camps or industries. Starting in 1946, the construction increased to 789 crossings, and in 1947 to 1,084 crossings. As shown in one of the tables, the flashing-light signal has now become standard for practically all new installations. Also of importance is the increasing number of projects which include automatically-controlled shortarm gates in addition to flashing-lights. A total of 608 such installations were made in 1947, as compared with 409 in 1946, and the prospects are for continued increases in the construction of this form of protection.

During 1947 the Baltimore & Ohio and the Union Pacific each installed a gravity-type freight classification yard including power switches and car retarders as well as various forms of modern communication facilities. Installations of this nature save considerable time for freight traffic and, therefore, more such projects are being planned for 1948.

Automatic Interlocking Installed in 1947

Railroad	Location	Number of Signals	Manufacturer
B. & M.	West Lynn, Mass. (Controls 2 electric locks)	–	G.R.S.
	Emery, N. H. (Controls 2 electric locks)		
C. & O. (P.M.)	May City, Mich.	4	.....
C. & N.W.	Clinton Jct., Wis.	4	G.R.S.
	Mason City, Iowa	8	G.R.S.
C.B. & Q.	Oakland, Neb.	4	.....
C.G.W.	Moorland, Iowa	4	Union
C.N.S. & M.	Kenosha, Wis.	4	Union
C.R.I. & P.	Kay, Iowa	6	Union
F.E.C.	Marcy, Fla.	5	G.R.S.
G.M. & O.	Ackerman, Miss.	4	G.R.S.
M. & St. L.	St. James, Minn. (Electrically-locked gates and signals)	2	Union
	Moorland, Iowa	4	Union
M.P. (G.C.L.)	Sinton, Tex.	4	G.R.S.
N.Y.C.	Hawthorne, Ont.	12	G.R.S.
Southern	Boyles, Ala.	6	G.R.S.
S.P.	Modesto, Cal.	4	Union
T. & N.O.	Houston, Tex.	8	Union
Total		83	

Comparison of Annual Signal Construction

	1947	1946	1945	1944	1943	1942	1941	1940	1939
Automatic Block Signals	2,269	3,078	2,350	1,539	1,690	1,421	1,407	1,017	879
Interlockings									
Signals and switches at new plants	857	1,529	910	851	1,498	785	518	1,024	396
At rebuilt plants	408	993	940	687	760	554	693	734	545
At automatic plants	83	132	88	62	55	78	80	125	96
Spring Switches									
Spring buffer mechanisms	356	554	764	382	448	284	275	294	222
Mechanical facing-point locks	107	248	341	115	88	126	159	97	104
Signals at spring switches	491	707	991	553	498	384	354	336	228
Centralized Traffic Control									
Power switch machines	538	453	633	596	463	263	190	121	38
Semi-automatic signals	1,810	1,385	2,217	2,141	1,775	1,030	675	375	122
Intermediate signals in C.T.C. territory	853	....	....	....	....	....	....	....	....
Classification Yards									
Car retarders	23	18	14	25	....	51	....	11	2
Power switch machines	27	73	57	52	....	108	....	19	3
Highway Crossing Protection									
Protective units	2,852	2,214	1,089	643	477	1,297	2,615	3,006	2,385
Totals	10,674	11,384	10,394	7,646	7,752	6,381	6,966	7,159	5,020

Telephones, Public Address and Musical Entertainment on Trains Installed in 1947

Railroad	Name of Train	Operating Between	Type of System or Systems Installed	No. of Locomotives Equipped	No. of Cars Equipped	Manufacturer
A. T. & S. F.	Various	Chicago, Los Angeles and Galveston	Music, radio and public announcing	..	20	Farnsworth
B. & O.	Cincinnatian	Baltimore and Cincinnati	Radio, public address and train telephone	4	12	Stromberg-Carlson, Hallicrafter, and B. & O.
C. & W. I.		Dearborn Station, Chicago	Public address	..	..	R. W. Neil
		Dearborn Station, Chicago	Tel-Autograph	..	..	Tel-Autograph
C. M. St. P. & P.	Olympian-Hiawatha	Chicago and Tacoma, Wash.	Public address and radio	..	54	Radio Corporation of America
C. R. I. & P.	23 Rocket trains	Chicago, Denver and Colorado Springs Chicago and Omaha Chicago and Des Moines Chicago and Peoria Chicago and Tucumcari Minneapolis and Houston Minneapolis and St. Louis Kansas City and Dallas Memphis and Amarillo	Radio and wire recording system	..	50	Collins
G. N.	Empire Builder	Chicago and Seattle, Wash.	Public address	..	35	Radio Corporation of America
	Empire Builder	St. Paul, Minn., and Seattle	Telephones	5	5	U. S. Instrument Corp.
	Empire Builder	Chicago and Seattle	Radio	..	30	Radio Corporation of America
I. C.	City of New Orleans	Chicago and New Orleans, La.	Public address	..	45	R. C. A.
N. Y. N. H. & H.	Various	New York and Boston—New York and Springfield	Public address	..	40	Stromberg-Carlson and University Loudspeaker
N. P.	North Coast Limited	Chicago and Seattle	Broadcast receivers	..	12	Farnsworth
Penna.	Trail Blazer	New York and Chicago	Public address and radio	..	101	R. C. A.
	Jeffersonian	New York and St. Louis	Public address and radio	..	101	R. C. A.
Southern Pacific T. & N. O.	Alamo	Houston, Tex., and New Orleans, La.	Broadcast receivers	..	2	Philco
Totals				9	507	

Car Retarder Projects Placed in Service During 1947

Railroad	Location	Number or Tracks	Number of Retarders	Rail Feet Retarders	Number of Switches	Number of Track Circuits	Signals	Skates	Number of Towers and Control Machines	Manufacturer
B. & O.	Cumberland, Md.	16	9	587	19	19	2	0	1	Union
U. P.	Pocatello, Idaho	28	14	999	27	27	6	0	3	Union
Totals		44	23	1,586	46	46	8	0	4	

Highway-Railroad Grade Crossing Protection Installed During 1947

Railroad	Number of Crossings	Source of Funds: Railroad	Source of Funds: Public Funds of Any Source	Source of Funds: Joint Railroad and Public Funds	Total Number of Protective Units	Number of Wig-Wag Signals	Number of Flashing-Light Signals	Number of Rotating Disk Stop Sign Signals	Number of Traffic Type Stop-and-Go Crossing Signals	Number of Electrically-Operated Gates
A. T. & S. F.	35	27	6	2	75	15	54	..	..	6
A. & W. P.-W. of Ala.	3	3	..	..	3	3	..	..	..	..
A. C. L.	8	..	..	8	29	..	17	..	..	12
B. & O.	30	15	6	9	70	..	62	..	..	8
B. & L. E.	1	1	..	..	2	..	2	..	..	..
B. & M.	36	24	9	3	136	..	78	..	4	54
Me. C.	9	4	4	1	22	..	19	..	..	3
C. N.	47	6	2	39	116	..	94	2	..	20
C. P.	26	4	..	22	56	..	56	..	..	..
C. of Ga.	8	7	1	..	16	..	15	..	1	..
C. V.	1	..	1	..	2	..	2	..	..	..
C. & O.	24	21	3	..	75	..	75	..	..	..
P. M.	12	1	7	4	35	..	25	..	..	10
C. & E. I.	19	6	2	11	57	..	35	..	20*	2
C. & N. W.	14	11	..	3	41	2	21	6	..	12
C. & W. I.	5	5	..	..	20	..	10	..	..	10
C. B. & Q.	15	12	..	3	42**	..	22	2	..	14
C. G. W.	6	5	..	1	12	..	12	..	..	..
C. M. St. P. & P.	22	19	3	..	46	11	15	18	..	2
C. N. S. & M.	2	1	1	..	4	..	4	..	..	..
C. R. I. & P.	23	16	7	..	62	..	44	2	..	16
C. S. S. & S. B.	8	8	..	..	20	..	15	..	..	5
C. & S.	1	..	..	1	2	..	2	..	..	..
D. & H.	25	..	..	..	89	..	65	..	..	24
D. & R. G. W.	6	..	6	..	26	..	11	..	..	15
D. L. & W.	6	6	..	..	14	..	14	..	..	..
D. T. & I.	3	1	..	2	34	..	34	..	..	..
D. M. & I. R.	3	3	..	..	6	..	6	..	..	..
E. J. & E.	2	2	..	..	6	..	4	..	..	2
Erie	5	5	..	..	17	..	14	1	..	2
F. E. C.	14	2	12	..	47	..	29	..	..	18
Georgia	6	6	..	..	6	6	..	..	..	..
G. N.	8	6	1	1	16	..	2	14	..	..
G. M. & O.	3	2	1	..	3	1	1	..	..	1
I. C.	26	25	..	1	81	..	53	4	..	24
L. & N. E.	2	1	..	1	4	..	4	..	..	..
L. V.	4	..	..	4	13	..	8	..	..	5
L. & N.	30	9	10	11	59	..	50	..	1	8
M. & St. L.	1	1	..	..	2	..	..	2	..	..
M. St. P. & S. S. M.	9	6	3	..	26	4	8	6	..	8
D. S. S. & A.	1	1	..	..	3	..	1	2	..	..
M.-K.-T.	9	6	2	1	20	..	20	..	..	..
M. P.	20	12	..	8	46	..	40	..	..	6
G. C. L.	8	8	..	..	16	..	16	..	..	..
I.-G. N.	26	26	..	..	54	..	52	..	..	2
M.-I.	1	..	..	1	2	..	2	..	..	..
N. C. & St. L.	7	7	..	..	15	..	15	..	..	..
N. Y. C. (Buffalo & East)	47	46	..	1	154	..	94	..	5	55
West of Buffalo	31	10	..	21	115	..	63	..	..	52
B. & A.	1	1	..	..	2	..	2	..	..	..
C. C. C. & St. L.	24	19	..	5	57	..	49	..	..	8
Michigan Central	29	21	6	2	86	..	54	..	..	32
N. Y. C. & St. L.	23	16	..	7	23	..	19	..	..	4
N. Y. N. H. & H.	19	19	..	..	54	..	47	..	..	7
N. Y. O. & W.	9	9	..	..	18	..	18	..	..	..
N. & W.	8	6	..	2	18	8	..	..	..	10
N. P.	40	38	2	..	84	..	72	10	..	2
P. E.	6	..	..	6	14	2	8	..	4	..
Penna.	62	39	14	9	245	..	164	10	..	71
L. I.	11	11	..	..	35	..	29	..	..	6
P.-R. S. S.	3	3	..	..	16	..	16	..	..	..
Reading	2	1	..	1	4	..	4	..	..	..
St. L.-S. F.	16	11	5	..	31	1	30	..	..	..
St. L. S. W.	3	..	..	3	6	..	6	..	..	..
S. A. L.	28	11	17	..	70	..	56	..	..	14
Southern	33	22	9	2	74	..	68	..	..	6
S. P.	38	1	28	9	76	2	66	..	..	8
T. & N. O.	12	11	1	..	28	..	16	..	..	12
T. & P.	15	15	..	..	15	..	7	..	..	8
T. H. & B.	1	..	..	1	2	..	2	..	..	..
Wabash	16	11	..	5	32	..	10	..	..	22
W. M.	3	..	..	3	3	..	3	..	..	..
W. P.	12	12	..	..	20	4	16	..	..	..
W. & L. E.	5	4	..	1	10	..	10	..	..	..
U. P.	7	1	..	6	12	..	10	..	..	2
Totals	1,084	669	169	221	2,852	59	2,067	79	35	608

Legend: * No left turn signs ** Four floodlights.

CONSTRUCTION VOLUME HIGHEST SINCE 1931

By HENRY E. MICHAEL
Associate Editor

Additions and betterments to the fixed properties of the railways last year reached, at last, a volume where it may be said that some inroads were made into the large backlog of improvements needed, many of which have been deferred since the early Thirties. This is indicated by reports to *Railway Age* by practically all of the railways of the country which show that, excluding grade crossing eliminations, the total amount authorized for improvement projects costing more than $100,000—either completed during 1947 or in progress at its end—was in excess of $262,000,000. Considering also those projects costing less than $100,000 each, and a number of the larger projects for which costs were not furnished, it is estimated that total expenditures for all improvements in and additions to the fixed properties in 1947 exceeded $280,000,000.

Having been restricted for many years in their ability to do more than plan large -scale improvements, first by low revenues during the depression and then by shortages of materials and limitations officially placed on their use during the war years, the railways started work on many projects as soon after the war as conditions permitted. They barely paused during 1947 to contemplate the combined effect of wage increases granted to employees and workers in the construction industry as compared with the advances allowed in freight rates, and embarked on construction programs for roadway and structures that were to exceed in total cost those of any year since 1931.

While many of the projects started or completed during 1947 were designed to meet specific immediate needs, a far greater proportion was fashioned for the future to place railroad properties in such position that they will be better able to compete with other forms of transportation, and do it economically. With much of the railway dollar going to employees for time made unproductive by obsolete facilities, a large amount of construction activity centered, and continues to center, at yards and terminals, on centralized traffic control installations, at shops and enginehouses, and on better freight-handling facilities.

Shortages continued during the year in many building construction items, particularly cast iron pipe, plumbing, glass and lumber—a large part of which was being used for housing construction. In consequence, fewer large passenger station modernization projects were started than had been expected at the end of 1946, as was the case also with most other types of railway building construction. As a further result, a great deal of construction started prior to and even during 1947 was concentrated on other types of work which required few materials, expecially of the scarce variety.

Line and Grade Revisions

Such considerations undoubtedly had something to do with creating the heavy 1947 volume of work relating to revision of grade and alinement, with their minimum demand for construction materials. More

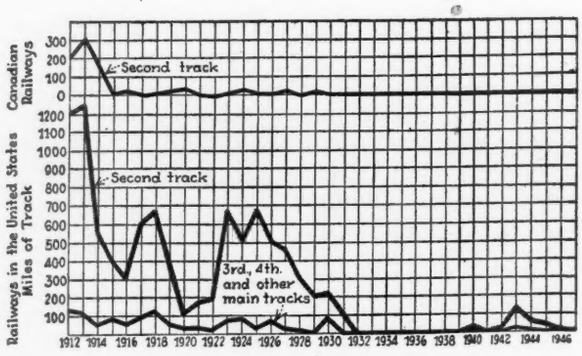
The Cone yard and engine-terminal facilities constructed by the Baltimore & Ohio at East St. Louis, Ill.

the same in 1947 as in 1946—slightly less than 5 mi. About 6 mi. of third track were placed in operation in 1947 as compared with 9 mi. in 1946.

In Canada, new lines built totaled slightly more than 13 mi., which compares with the construction of less than 1 mi. in 1946. No new multiple-track work was completed during either year.

Improvement work in 1948 is expected to equal, and perhaps exceed, that of the year just ended. The need is great, and the plans in many cases are already prepared. All that is needed to execute these plans is the removal of some of the remaining deterring factors to new construction, principally the inadequate and indefinite supply of materials, and approval by the Interstate Commerce Commission of the increases in freight rates being asked by the railroads.

Following is a detailed report by roads of all grade crossing work undertaken during 1947, as well as of all other construction projects completed during the year, or still in progress at its close, the individual cost of which approached or exceeded $100,000:


Canadian Railways
Second track
Railways in the United States Miles of Track
Second track
3rd., 4th. and other main tracks
1912 1914 1916 1918 1920 1922 1924 1926 1928 1930 1932 1934 1936 1938 1940 1942 1944 1946

Mileage of multiple tracks constructed

Railway Construction in the United States

(Figures in parentheses indicate percentage of completion at the end of 1947)

Aberdeen & Rockfish

First Track: Aberdeen, N. C., to Fayetteville, 45.00 mi.

Akron, Canton & Youngstown

Important Work Undertaken: Installation of fuel-storage and shop facilities for Diesel locomotives, Akron, Ohio, and Delphos, $100,000 (20).

Atchison, Topeka & Santa Fe

Grade Crossing Eliminations: Overcrossing: Henrietta, Mo. (100).
Important Work Undertaken: Construction of building for Harvey commissary, Chicago (60); addition to power house, including new boilers, Chicago (100); renewal of bridge near Wilbern, Ill. (40); construction of hump yard, Argentine, Kans. (30); remodel passenger station, Topeka, Kans. (30); remodel freight-car shop, Topeka, Kans. (100); revision of alinement near Noble, Okla. (100); installation of C. T. C., including necessary track changes, Newton, Kans., to North Junction, Wichita (100); installation of C. T. C., including necessary track changes, South Junction, Wichita, Kans., to Mulvane (40); installation of automatic block signals, Bragdon, Colo., to South Denver (100); relocation of segment of double track, Querino Canyon, Ariz. (85); construction of doubletrack bridge replacing gauntlet type, Canyon Diablo, Ariz. (100); revision of alinement, Ancona, Ill. (100).
(Gulf, Colorado & Santa Fe) *Grade Crossing Eliminations:* Overcrossing: Maglab, Tex. (10). Subway: Tolar, Tex. (100).
Important Work Undertaken: Revision of alinement near Wynnewood, Okla. (60).
(Panhandle & Santa Fe) *Important Work Undertaken:* Installation of C. T. C., including necessary track changes, Canadian, Tex., to Pampa (100); installation of C. T. C., including necessary track changes, Canyon, Tex., to Texico, New Mex. (30).

Atlanta & Saint Andrews Bay

Important Work Undertaken: Construction of classification yard, including shops for servicing and repairing Diesel locomotives, Panama City, Fla., $500,000 (10).

Atlantic Coast Line

New Road Under Construction: Clewiston, Fla., to Okeelanta, 16.00 mi.
Grade Crossing Eliminations: Overcrossingss Tarpon Springs, Fla., $40,000 (100); Subways: Lake Placid, Fla., $110,000 (100).
Important Work Undertaken: Replace freighthouse, Waycross, Ga., $176,000 (100); rearrange terminal facilities Pelham, Ga., $110,000 (100); relocation of main track and construction of station building, Gainesville, Fla., $351,000 (70).

Baltimore & Ohio

Grade Crossing Eliminations: Grant City-Bay Terrace, Staten Island, N. Y., joint with state, railroad work, $3,800,000 (20); Brady St., DuBois, Pa., railroad work $44,000 (37); Hartwell Ave., Cincinnati, Ohio, railroad work, $50,000 (95); Riggs Road, Washington, D. C., railroad work, $40,000 (100); Georgia Ave., Silver Spring, Md., railroad work, $95,000 (50); reconstruction of bridge, Baltimore, Md., railroad work, $66,000 (10).
Important Work Undertaken: Construction of connection to Toledo Terminal Railroad, Bates, Ohio, $190,000 (40); construction of coal and engine-handling facilities, Baltimore, Md., $161,000 (100); construction of coal and engine-handling facilities, Benwood, W. Va., $348,000 (100); revision of alinement on account of construction of flood wall, Cincinnati, Ohio, $250,000 (80); grading for Mill Creek yard, Cincinnati, Ohio, $500,000 (65); installation of car retarders, including necessary track changes, Cumberland, Md., $575,000 (100); improvement of Eastern Ohio branch, Cumberland, Ohio, $122,000 (100); construction of spur track to serve Ohio Power Company, Cumberland, Ohio, $308,715 (100); construction of tracks and structures at Barr yard, Chicago, $1,856,000 (100); construction of locomotive and car-servicing facilities, Barr yard, Chicago, $563,000 (100); construction of freighthouse, Chicago, $213,000 (100); construction of (Cone) yard including engine-handling facilities, East St. Louis, Ill., $2,865,000 (95); construction of coal-handling facilities, Howland Hook, N. Y., $445,000 (30).
Construction of locomotive servicing facilities, Garrett, Ind., $110,000 (100); construction of facilities for handling Latex, Locust Point, Md., $300,000 (100); construction of facilities for handling bananas, Locust Point, Md., $119,000 (90); improvement to two piers, Locust Point, Md., $179,000 (100); construction of coal-handling facilities, Lorain, Ohio, $3,700,000 (100); construction of engine terminal facilities, M & K Junction, W. Va., $113,000 (100); revision of alinement on account of construction of "Dillon" dam between Newark, Ohio, and Zanesville, $6,125,000 (56) (work suspended); construction of rest house, New Castle Junction, Ohio, $135,000 (90); construction of Elk Creek spur, Overfield, W. Va., $2,955,000 (20); reconstruction of bridge, Point Pleasant, W. Va., $1,890,000 (100); construction of additional mine tracks, Triadelphia, W. Va., $170,000 (80); construction of street improvement, Washington, D. C., $410,000 (100); construction of additional freight facilities, Washington, D. C., $128,000 (100); construction of division office building, Washington, Ind., $100,000 (50); revision of alinement, Willow Creek, Ind., $119,000 (100); construction of facilities for servicing and maintaining Diesel locomotives, at various points, $425,000 (started); improvements to 28 bridges, $1,125,000 (started); installation of car retarders, Willard, Ohio, $2,087,000 (45).

Belt Railway of Chicago

Grade Crossing Eliminations: Subways: 47th St. and Kenton Ave., Chicago, with railroad and highway funds, $400,000 (100).

Bessemer & Lake Erie

Grade Crossing Eliminations: Overcrossings: Harmonsburg, Pa., constructed by the state with federal funds, $137,200 (30).

Boston & Maine

Important Work Undertaken: Installation of block signals, interlockings and C. T. C., including necessary track changes, Lowell Junction, Mass., to Willows, $1,000,000 (60); construction of Diesel locomotive shop, including stores building, track changes, and other incidental servicing facilities, Somerville, Mass., $1,000,000 (100).

Burlington-Rock Island

Grade Crossing Eliminations: Overcrossing: Dobbin, Tex., cost borne by state, $210,000 (100).

Central of Georgia

Grade Crossing Eliminations: Overcrossings: Wilkinson county, Gordon, Ga., built by state with federal funds, $50,000 (80); Haralson county, Buchanan, Ga., built by state with federal funds, $80,000 (started).

Central of New Jersey

Important Work Undertaken: Reconstruction of two bridges, Bayonne, N. J., 590,000 (50); construction of servicing facilities, including oil storage facilities for Diesel locomotives, Jersey City, N. J., $209,000 (100).

Chesapeake & Ohio

(Chesapeake District) *New Road Under Construction:* Jenkins, Ky., to end of line, Meade Fork, Va., 14.50 mi.; Wayland, Ky., to end of line near Deane, 23.00 mi.
Grade Crossings Eliminations: Overcrossings: Dock, W. Va. (70); Bluestone, Ky., $188,500 (5). Both projects done with federal funds.
Important Work Undertaken: Rehabilitation and modernization of toilet facilities in 43 passenger stations, $264,350 (82); construction of low-level coal pier, including track facilities, Newport News, Va., $5,020,000 (15); renewal of pedestals and two bents on viaduct, Richmond, Va., $119,000 (started); construction of 18 storage tracks

and an additional 160-car track in east bound yard, Gladstone, Va., $453,200 (80); respacing and rearrangement of signals, including necessary track changes to provide adequate stopping distance for trains, $150,900 (85); installation of C. T. C., including necessary track changes, Balcony Falls, Va., to Iron Gate, $456,300 (33); remodel passenger station, extend and rearrange yard tracks, telephone and telegraph lines and other facilities, Charlottesville, Va., $540,200 (47); replace Union passenger station, Waynesboro, Va., $476,700 (started); revision of alinement, Craigsville, Va., $191,400 (70); revision of alinement, including construction of new bridge, Lowell, W. Va., $449,620 (65); extension of two stalls in enginehouse and installation of electric driving wheel drop-pit table across three pits, Hinton, W. Va., $106,720 (started); construction of additional freight main tracks and two yard tracks, Huntington, W. Va., $880,000 (started); construction of additional yard tracks, Handley, W. Va., $183,600 (40); reconstruction of approaches to bridge over Big Sandy river, Kenova, W. Va., $1,124,100 (started); construction of additional yard-track facilities, Ashland, Ky., $151,825 (started); installation of C. T. C., including necessary track changes, between Sproul; W. Va., and Brounland, from St. Albans, W. Va., to McCorkles, and construction of yard-office building in St. Albans, $378,175 (20); construction of tracks to serve coal mine, including bridge over Guyandot River, Wilber (Rita), W. Va., $347,000 (60); construction of track to serve coal mine, Barrett, W. Va., $770,265 (80); construction of tracks to serve coal mine, Stowe, W. Va., $158,130 (80).

Installation of switch mechanisms with facing-point locks and center-lever locking on main-track crossovers in automatic block signal territory, $137,800 (95); extension of old, and construction of new passing sidings, construction of water station, installation of C. T. C., including necessary track changes, between Big Sandy Junction, Ky., and Martin, installation of automatic color light signals, Beaver Junction, Ky., to Elkhorn City, installation of reverse traffic signals, Kise, Ky., to Richardson, $1,213,762 (78); construction of yard and engine-terminal improvements, Shelby, Ky., $1,192,000 (78); tracks to serve coal mines at Gearheart, Ky., and Buckingham, $371,000 (60); rearrangement of tracks, construction of shop building and concrete truckways, Russell, Ky., $244,700 (55); construction of Y. M. C. A. building, Russell, Ky., $583,700 (3); installation of 130-ft. turn table, Russell, Ky., $236,900 (started); reconstruction and extension of bridge, Augusta, Ky., $122,400 (started); construction of passenger station and remodeling of freight station, Newport, Ky., $310,200 (started); reconstruction of bridge, Brighton, Ohio, $500,000 (started); installation of remote-control power switches and signals at passing sidings, Limeville, Ky., to Parsons, Ohio, $559,125 (3); installation of remote-control power switches and signals at passing sidings, Columbus, Ohio, to Cummings, $1,022,475 (2); installation of a 130-ft. turntable at Parsons, Ohio, a 115-ft. turntable at Marion and a 100-ft. turntable at Pomeroy, $307,300 (started); extension of engine house and installation of 5 electric drop-pit tables and an additional engine hoist, and reconstruction of 2 pits, Russell, Ky., $220,700 (started).

Installation of interlocking facilities at crossings at grade with the B. & O., N. Y. C., and N. K. P., including flasher light signals at two street crossings, Fostoria, Ohio, $165,000 (started); construction of water station and blow-off pit, Powell Wye, Ohio, $113,800 (10); extension of enginehouse, replacement of sandhouse and rearrangement of service tracks, Walbridge, Ohio, 261,900 (started); installation of car retarders, flood-light facilities, loud-speaker and pneumatic-tube communication facilities and the construction of shop building and yardmaster's office, Walbridge, Ohio, $1,328,270 (32); installation of train telephone communication system, Orange, Va., to Cincinnati, Ohio, $150,000 (15); installation of radio communication between dispatcher's office and freight work trains, Parsons, Ohio, to Marion, $104,000 (started); rearrangement and enlargement of barney and return yards at Pier 9, installation of mules and replacement of 20th St. bridge with pedestrian subway, Newport News, Va., $412,200 (100); construction of eight cinder-block warehouses having sprinkler systems, Newport News, Va., $446,000 (100); construction of 18 additional storage tracks, Newport News, Va., $128,600 (100); construction of 16 cinder-block warehouses, including sprinkler systems, Morrison, Va., $638,500 (100).

Revision of alinement, Peake, Va., to Hanover, $419,900 (100); revision of alinement, including new depot, Keswick, Va., $167,300 (100); revision of alinement, Panther Gap, Va., $254,300 (100); installation of C. T. C., including necessary track changes, Staunton, Va., to Clifton Forge, $379,800 (100); revision of alinement, including the replacement of a bridge, Goshen, Va., $214,374 (100); revision of alinement. Millboro, Va., $208,910 (100); revision of alinement, including the daylighting of Masons tunnel, Millboro, Va., $160,450 (100); revision of alinement, Longdale, Va., $179,500 (100); revision of alinement, Griffith, Va., $392,800 (100); construction of a double switching lead, Clifton Forge, Va., $285,000 (100); extension of switching lead, Covington, Va., $177,800 (100); revision of alinement, including the construction of a new tunnel, Ft. Spring, W. Va., $2,254,500 (100); construction of two 50-ton coaling stations at Clifton Forge, Va., and Hinton, W. Va., $146,400, (100); extension over 5 tracks and eastbound yard, including construction of switching lead, Hinton, W. Va., $608,200 (100); installation of C. T. C., including necessary track changes and the addition to a signal tower, Sewell, W. Va., to MacDougal, $289,950 (100); construction of tracks to serve coal mine, Sarita, W. Va., $113,600 (100); construction of tracks to serve coal mine, Stollings, W. Va., $267,600 (100); construction of tracks to serve coal-washing plant, Ceredo, W. Va., $1,046,300 (100); reconstruction of bridge over Big Sandy river, Big Sandy Junction, Ky., $1,351,000 (100); construction of tracks to serve coal mine, Emmett, W. Va., $237,265 (100).

Renewal of coaling station, including rearrangement of tracks and electrification of water station, West Hamlin, W. Va., $171,500 (100); installation of automatic block signal system, Ashland, Ky., to Lexington, $488,270 (100); installation of C. T. C., including necessary track changes, Aden, Ky., to Olive Hill, $134,000 (100); construction of tracks to serve coal mine, White House, Ky., $185, 200 (100); replace frame coaling station with concrete, and erect water tank, Paintsville, Ky., $193,500 (100); construction of spur to serve mine development, Nigh, Ky., $475,000 (100); construction of concrete coaling station to replace frame structure, Martin, Ky., $109,500 (100); construction of tracks to serve coal mine, Meade Fork, Va., $234,400 (100); construction of tracks to serve coal mine, Myra, Ky., $427,600 (100); extension of shop building, including installation of machinery and equipment, Russell, Ky., $834,000 (100); revision of grade, Russell, Ky., $123,600 (100); extension of tracks in two yards, Stevens, Ky., $251,425 (100); renewal of bridge, Richmond, Ind., $190,000 (100); installation of fire curtains, supplemented by automatic sprinkler systems, Newport News, Va., $195,300 (100).

(Pere Marquette district) *Grade Crossing Eliminations:* Subways: Edsel Ford Expressway, Herbert street, Detroit, Mich., state and federal aid funds, $446,000 (55); East Paris, Mich., state and federal aid funds, $320,000 (25).

Important Work Undertaken: Construction of track, building, and installation of steel storage tanks for servicing Diesel locomotives, Wyoming, Mich., $330,000 (75); installation of C. T. C., including the construction of new passing tracks and the relocation and retirement of existing tracks, St. Joseph, Mich., to E. Saugatuck, $425,000 (10); revision of alinement, Brighton, Mich., $105,000 (100).

Chicago & Eastern Illinois

Important Work Undertaken: Modernization of power plant, including a new boiler, stoker, coal and ash-handling equipment, and an additional generator, Danville, Ill., $332,000 (65); installation of C. T. C., including necessary track changes and the extension of 14 passing sidings, Clinton, Ind., to Evansville, $753,676 (100); revision of alinement incidental to curve reduction, Decker, Ind., $136,321 (100).

Chicago & North Western

Grade Crossing Eliminations: Overcrossings: Barr, Ill., work financed and performed by county, $21,663 (100); Union Grove, Ill., work financed and performed by state, $232,863 (10); Highway No. 84, Cedar Rapids, Iowa, $135,039 (started).

Important Work Undertaken: Construction of addition to Chicago Ave. enginehouse, including heating, lighting and plumbing systems and relocation of machine shops, Chicago, $162,000 (98); construction of Diesel locomotive servicing and repair shop building complete with all incidental facilities and track alterations, Chicago, $1,822,000 (10); installation of C. T. C., including necessary track changes, West Chicago, Ill., to Nelson, $1,590,265 (40); construction of a multiple-span bridge on concrete pile substructure, including revision of grade on double track approach, Denison, Iowa, $284,930 (60); construction of multiple-span double-track bridge on concrete pile substructure, Arion, Iowa, $234,890 (60); construction of a multiple-span double-track bridge on concrete pile substructure, including revision of grade on approaches, Dunlap, Iowa, $235,350 (60); revision of grade over bridges, including new waterway openings, Vail, Iowa, to Denison, $172,000 (40); construction of car unloader at Grain Elevator, Council Bluffs, Iowa, $236,955 (90); relocation of lead track and extension of 12 yard tracks, Clinton, Iowa, $198,000 (100); reconstruction of three bridges, including revision of grades, Belle Plaine, Iowa, $134,100 (65); construction of engine servicing facilities, including necessary track changes, Council Bluffs, Iowa, $128,800 (100); reconstruction of portion of bulkhead, fender and knuckle-fender at car-ferry slip, Manitowoc, Wis., $168,000 (60).

Chicago & Western Indiana

Important Work Undertaken: Modernization and improvement of Dearborn passenger station, including the addition of a mezzanine waiting room, and improvements to ticket office, concourse, and waiting rooms, Chicago, $653,000 (100).

Chicago, Burlington & Quincy

Grade Crossing Eliminations: Subways: Ranchester, Wyo., $150,000 (100); two highways, Tecumseh, Neb., $82,000 (5); Norway, Neb., $60,000 (15).

Important Work Undertaken: Installation of C. T. C., including necessary track changes, Old Monroe, Mo., to Machens, $430,966 (10); installation of C. T. C., including necessary track changes, Balfour, Iowa, to Pacific Junction, $312,360 (3); revision of alinement, Daggets, Ill., $333,972 (60); relocation of main and yard tracks, Beardstown, Ill., $285,504 (40); installation of facilities for servicing Zephyr streamliners, Chicago, $297,863 (100); addition to dock unloading spaces at freighthouse, Chicago, $137,113 (100); rearrangement Murray Yard, North Kansas, Mo., $1,179,903 (30); rearrangement of classification yard, North Kansas City, Mo., $140,696 (60); revision of grade, Mark, Mo., $167,024 (15); revision of grade, Cullom, Neb., $220,273 (75); installation of mechanical car washer, Denver, Colo., $127,884 (100); reduction of curves and revision of grade, Plattsmouth, Neb., $214,310 (75); installation of telephone and teletype channels on system, $689,768 (100); reconstruction of bridge, Farley, Mo., $700,000 (100); construction of barge dock, Lewiston, Ill., to Illinois river, $651,935 (100); construction of new yard, West Quincy, Mo., $938,702 (100); revision of grade, White Rock, Mo., to Riverland, $262,688 (100); relocation of main track, Burke, Ill., $212,141 (100); reduction of curvature, Greenwood, Neb., $142,493 (100).

Chicago, Milwaukee, St. Paul & Pacific

Grade Crossing Eliminations: Subways: West Allis, Wis., with state and railway funds, $70,000 (100). Reconstruction of Existing Grade Crossing Structures: Rodney, Ia., railway funds, $12,000 (100); Morningside, Ia., railway funds, $13,000 (100); Richland, Ia., with federal funds, $100,000 (100); Cowgill, Mo., with railway funds, $9,000 (100).

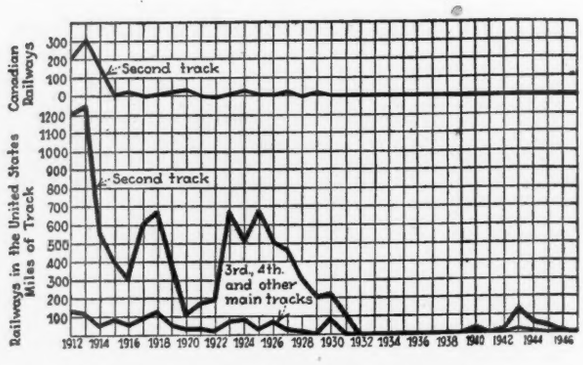
Important Work Undertaken: Construction of flat yard to replace eastbound hump yard to accommodate the larger trains, Bensenville, Ill., $425,000 (100); revision of alinement and grade, Glenham, S. D., to Selby, $650,000 (100); construction of storage yard, Milwaukee, Wis., $160,000 (100); enlargement of Glendale yard, Milwaukee, Wis., $180,000 (100); enlargement of west yard, Milwaukee, Wis., $400,000 (40); reconstruction of pier protection of Menominee river bridge, Milwaukee, Wis., $148,000 (95); reconstruction of additional tracks and 1,800-ft. retaining wall, Milwaukee, Wis., $274,000 (100); construction of freighthouse, Chicago, $400,000 (100); construction of new shop facilities, Milwaukee, Wis., $1,457,000 (100);

the same in 1947 as in 1946—slightly less than 5 mi. About 6 mi. of third track were placed in operation in 1947 as compared with 9 mi. in 1946.

In Canada, new lines built totaled slightly more than 13 mi., which compares with the construction of less than 1 mi. in 1946. No new multiple-track work was completed during either year.

Improvement work in 1948 is expected to equal, and perhaps exceed, that of the year just ended. The need is great, and the plans in many cases are already prepared. All that is needed to execute these plans is the removal of some of the remaining deterring factors to new construction, principally the inadequate and indefinite supply of materials, and approval by the Interstate Commerce Commission of the increases in freight rates being asked by the railroads.

Following is a detailed report by roads of all grade crossing work undertaken during 1947, as well as of all other construction projects completed during the year, or still in progress at its close, the individual cost of which approached or exceeded $100,000:


Railways in the United States
Miles of Track
Canadian Railways
Second track
Second track
3rd., 4th. and other main tracks
1912 1914 1916 1918 1920 1922 1924 1926 1928 1930 1932 1934 1936 1938 1940 1942 1944 1946

Mileage of multiple tracks constructed

Railway Construction in the United States

(Figures in parentheses indicate percentage of completion at the end of 1947)

Aberdeen & Rockfish

First Track: Aberdeen, N. C., to Fayetteville, 45.00 mi.

Akron, Canton & Youngstown

Important Work Undertaken: Installation of fuel-storage and shop facilities for Diesel locomotives, Akron, Ohio, and Delphos, $100,000 (20).

Atchison, Topeka & Santa Fe

Grade Crossing Eliminations: Overcrossing: Henrietta, Mo. (100).
Important Work Undertaken: Construction of building for Harvey commissary, Chicago (60); addition to power house, including new boilers, Chicago (100); renewal of bridge near Wilbern, Ill. (40); construction of hump yard, Argentine, Kans. (30); remodel passenger station, Topeka, Kans. (30); remodel freight-car shop, Topeka, Kans. (100); revision of alinement near Noble, Okla. (100); installation of C. T. C., including necessary track changes, Newton, Kans., to North Junction, Wichita (100); installation of C. T. C., including necessary track changes, South Junction, Wichita, Kans., to Mulvane (40); installation of automatic block signals, Bragdon, Colo., to South Denver (100); relocation of segment of double track, Querino Canyon, Ariz. (85); construction of doubletrack bridge replacing gauntlet type, Canyon Diablo, Ariz. (100); revision of alinement, Ancona, Ill. (100).

(Gulf, Colorado & Santa Fe) *Grade Crossing Eliminations:* Overcrossing: Maglab, Tex. (10). Subway: Tolar, Tex. (100).
Important Work Undertaken: Revision of alinement near Wynnewood, Okla. (60).

(Panhandle & Santa Fe) *Important Work Undertaken:* Installation of C. T. C., including necessary track changes, Canadian, Tex., to Pampa (100); installation of C. T. C., including necessary track changes, Canyon, Tex., to Texico, New Mex. (30).

Atlanta & Saint Andrews Bay

Important Work Undertaken: Construction of classification yard, including shops for servicing and repairing Diesel locomotives, Panama City, Fla., $500,000 (10).

Atlantic Coast Line

New Road Under Construction: Clewiston, Fla., to Okeelanta, 16.00 mi.
Grade Crossing Eliminations: Overcrossings: Tarpon Springs, Fla., $40,000 (100); Subways: Lake Placid, Fla., $110,000 (100).
Important Work Undertaken: Replace freighthouse, Waycross, Ga., $176,000 (100); rearrange terminal facilities Pelham, Ga., $110,000 (100); relocation of main track and construction of station building, Gainesville, Fla., $351,000 (70).

Baltimore & Ohio

Grade Crossing Eliminations: Grant City-Bay Terrace, Staten Island, N. Y., joint with state, railroad work, $3,800,000 (20); Brady St., DuBois, Pa., railroad work $44,000 (37); Hartwell Ave., Cincinnati, Ohio, railroad work, $50,000 (95); Riggs Road, Washington, D. C., railroad work, $40,000 (100); Georgia Ave., Silver Spring, Md., railroad work, $95,000 (50); reconstruction of bridge, Baltimore, Md., railroad work, $66,000 (10).
Important Work Undertaken: Construction of connection to Toledo Terminal Railroad, Bates, Ohio, $190,000 (40); construction of coal and engine-handling facilities, Baltimore, Md., $161,000 (100); construction of coal and engine-handling facilities, Benwood, W. Va., $348,000 (100); revision of alinement on account of construction of flood wall, Cincinnati, Ohio, $250,000 (80); grading for Mill Creek yard, Cincinnati, Ohio, $500,000 (65); installation of car retarders, including necessary track changes, Cumberland, Md., $575,000 (100); improvement of Eastern Ohio branch, Cumberland, Ohio, $122,000 (100); construction of spur track to serve Ohio Power Company, Cumberland, Ohio, $308,715 (100); construction of tracks and structures at Barr yard, Chicago, $1,856,000 (100); construction of locomotive and car-servicing facilities, Barr yard, Chicago, $563,000 (100); construction of freighthouse, Chicago, $213,000 (100); construction of (Cone) yard including engine-handling facilities, East St. Louis, Ill., $2,865,000 (95); construction of coal-handling facilities, Howland Hook, N. Y., $445,000 (30).

Construction of locomotive servicing facilities, Garrett, Ind., $110,000 (100); construction of facilities for handling Latex, Locust Point, Md., $300,000 (100); construction of facilities for handling bananas, Locust Point, Md., $119,000 (90); improvement to two piers, Locust Point, Md., $179,000 (100); construction of coal-handling facilities, Lorain, Ohio, $3,700,000 (100); construction of engine terminal facilities, M & K Junction, W. Va., $113,000 (100); revision of alinement on account of construction of "Dillon" dam between Newark, Ohio, and Zanesville, $6,125,000 (56) (work suspended); construction of rest house, New Castle Junction, Ohio, $135,000 (90); construction of Elk Creek spur, Overfield, W. Va., $2,955,000 (20); reconstruction of bridge, Point Pleasant, W. Va., $1,890,000 (100); construction of additional mine tracks, Triadelphia, W. Va., $170,000 (80); construction of street improvement, Washington, D. C., $410,000 (100); construction of additional freight facilities, Washington, D. C., $128,000 (100); construction of division office building, Washington, Ind., $100,000 (50); revision of alinement, Willow Creek, Ind., $119,000 (100); construction of facilities for servicing and maintaining Diesel locomotives, at various points, $425,000 (started); improvements to 28 bridges, $1,125,000 (started); installation of car retarders, Willard, Ohio, $2,087,000 (45).

Belt Railway of Chicago

Grade Crossing Eliminations: Subways: 47th St. and Kenton Ave., Chicago, with railroad and highway funds, $400,000 (100).

Bessemer & Lake Erie

Grade Crossing Eliminations: Overcrossings: Harmonsburg, Pa., constructed by the state with federal funds, $137,200 (30).

Boston & Maine

Important Work Undertaken: Installation of block signals, interlockings and C. T. C., including necessary track changes, Lowell Junction, Mass., to Willows, $1,000,000 (60); construction of Diesel locomotive shop, including stores building, track changes, and other incidental servicing facilities, Somerville, Mass., $1,000,000 (100).

Burlington-Rock Island

Grade Crossing Eliminations: Overcrossing: Dobbin, Tex., cost borne by state, $210,000 (100).

Central of Georgia

Grade Crossing Eliminations: Overcrossings: Wilkinson county, Gordon, Ga., built by state with federal funds, $50,000 (80); Haralson county, Buchanan, Ga., built by state with federal funds, $80,000 (started).

Central of New Jersey

Important Work Undertaken: Reconstruction of two bridges, Bayonne, N. J., 590,000 (50); construction of servicing facilities, including oil storage facilities for Diesel locomotives, Jersey City, N. J., $209,000 (100).

Chesapeake & Ohio

(Chesapeake District) *New Road Under Construction:* Jenkins, Ky., to end of line, Meade Fork, Va., 14.50 mi.; Wayland, Ky., to end of line near Deane, 23.00 mi.
Grade Crossings Eliminations: Overcrossings: Dock, W. Va. (70); Bluestone, Ky., $188,500 (5). Both projects done with federal funds.
Important Work Undertaken: Rehabilitation and modernization of toilet facilities in 43 passenger stations, $264,350 (82); construction of low-level coal pier, including track facilities, Newport News, Va., $5,020,000 (15); renewal of pedestals and two bents on viaduct, Richmond, Va., $119,000 (started); construction of 18 storage tracks

and an additional 160-car track in east bound yard, Gladstone, Va., $453,200 (80); respacing and rearrangement of signals, including necessary track changes to provide adequate stopping distance for trains, $150,900 (85); installation of C. T. C., including necessary track changes, Balcony Falls, Va., to Iron Gate, $456,300 (33); remodel passenger station, extend and rearrange yard tracks, telephone and telegraph lines and other facilities, Charlottesville, Va., $540,200 (47); replace Union passenger station, Waynesboro, Va., $476,700 (started); revision of alinement, Craigsville, Va., $191,400 (70); revision of alinement, including construction of new bridge, Lowell, W. Va., $449,620 (65); extension of two stalls in enginehouse and installation of electric driving wheel drop-pit table across three pits, Hinton, W. Va., $106,720 (started); construction of additional freight main tracks and two yard tracks, Huntington, W. Va., $880,000 (started); construction of additional yard tracks, Handley, W. Va., $183,600 (40); reconstruction of approaches to bridge over Big Sandy river, Kenova, W. Va., $1,124,100 (started); construction of additional yard-track facilities, Ashland, Ky., $151,825 (started); installation of C. T. C., including necessary track changes, between Sproul; W. Va., and Brounland, from St. Albans, W. Va., to McCorkles, and construction of yard-office building in St. Albans, $378,175 (20); construction of tracks to serve coal mine, including bridge over Guyandot River, Wilber (Rita), W. Va., $347,000 (60); construction of track to serve coal mine, Barrett, W. Va., $770,265 (80); construction of tracks to serve coal mine, Stowe, W. Va., $158,130 (80).

Installation of switch mechanisms with facing-point locks and center-lever locking on main-track crossovers in automatic block signal territory, $137,800 (95); extension of old, and construction of new passing sidings, construction of water station, installation of C. T. C., including necessary track changes, between Big Sandy Junction, Ky., and Martin, installation of automatic color light signals, Beaver Junction, Ky., to Elkhorn City, installation of reverse traffic signals, Kise, Ky., to Richardson, $1,213,762 (78); construction of yard and engine-terminal improvements, Shelby, Ky., $1,192,000 (78); tracks to serve coal mines at Gearheart, Ky., and Buckingham, $371,000 (60); rearrangement of tracks, construction of shop building and concrete truckways, Russell, Ky., $244,700 (55); construction of Y. M. C. A. building, Russell, Ky., $583,700 (3); installation of 130-ft. turn table, Russell, Ky., $236,900 (started); reconstruction and extension of bridge, Augusta, Ky., $122,400 (started); construction of passenger station and remodeling of freight station, Newport, Ky., $310,200 (started); reconstruction of bridge, Brighton, Ohio, $500,000 (started); installation of remote-control power switches and signals at passing sidings, Limeville, Ky., to Parsons, Ohio, $559,125 (3); installation of remote-control power switches and signals at passing sidings, Columbus, Ohio, to Cummings, $1,022,475 (2); installation of a 130-ft. turntable at Parsons, Ohio, a 115-ft. turntable at Marion and a 100-ft. turntable at Pomeroy, $307,300 (started); extension of engine house and installation of 5 electric drop-pit tables and an additional engine hoist, and reconstruction of 2 pits, Russell, Ky., $220,700 (started).

Installation of interlocking facilities at crossings at grade with the B. & O., N. Y. C., and N. K. P., including flasher light signals at two street crossings, Fostoria, Ohio, $165,000 (started); construction of water station and blow-off pit, Powell Wye, Ohio, $113,800 (10); extension of enginehouse, replacement of sandhouse and rearrangement of service tracks, Walbridge, Ohio, 261,900 (started); installation of car retarders, flood-light facilities, loud-speaker and pneumatic-tube communication facilities and the construction of shop building and yardmaster's office, Walbridge, Ohio, $1,328,270 (32); installation of train telephone communication system, Orange, Va., to Cincinnati, Ohio, $150,000 (15); installation of radio communication between dispatcher's office and freight work trains, Parsons, Ohio, to Marion, $104,000 (started); rearrangement and enlargement of barney and return yards at Pier 9, installation of mules and replacement of 20th St. bridge with pedestrian subway, Newport News, Va., $412,200 (100); construction of eight cinder-block warehouses having sprinkler systems, Newport News, Va., $446,000 (100); construction of 18 additional storage tracks, Newport News, Va., $128,600 (100); construction of 16 cinder-block warehouses, including sprinkler systems, Morrison, Va., $638,500 (100).

Revision of alinement, Peake, Va., to Hanover, $419,900 (100); revision of alinement, including new depot, Keswick, Va., $167,300 (100); revision of alinement, Panther Gap, Va., $254,300 (100); installation of C. T. C., including necessary track changes, Staunton, Va., to Clifton Forge, $379,800 (100); revision of alinement, including the replacement of a bridge, Goshen, Va., $214,374 (100); revision of alinement. Millboro, Va., $208,910 (100); revision of alinement, including the daylighting of Masons tunnel, Millboro, Va., $160,450 (100); revision of alinement, Longdale, Va., $179,500 (100); revision of alinement, Griffith, Va., $392,800 (100); construction of a double switching lead, Clifton Forge, Va., $285,000 (100); extension of switching lead, Covington, Va., $177,800 (100); revision of alinement, including the construction of a new tunnel, Ft. Spring, W. Va., $2,254,500 (100); construction of two 50-ton coaling stations at Clifton Forge, Va., and Hinton, W. Va., $146,400, (100); extension over 5 tracks and eastbound yard, including construction of switching lead, Hinton, W. Va., $608,200 (100); installation of C. T. C., including necessary track changes and the addition to a signal tower, Sewell, W. Va., to MacDougal, $289,950 (100); construction of tracks to serve coal mine, Sarita, W. Va., $113,600 (100); construction of tracks to serve coal mine, Stollings, W. Va., $267,600 (100); construction of tracks to serve coal-washing plant, Ceredo, W. Va., $1,046,300 (100); reconstruction of bridge over Big Sandy river, Big Sandy Junction, Ky., $1,351,000 (100); construction of tracks to serve coal mine, Emmett, W. Va., $237,265 (100).

Renewal of coaling station, including rearrangement of tracks and electrification of water station, West Hamlin, W. Va., $171,500 (100); installation of automatic block signal system, Ashland, Ky., to Lexington, $488,270 (100); installation of C. T. C., including necessary track changes, Aden, Ky., to Olive Hill, $134,000 (100); construction of tracks to serve coal mine, White House, Ky., $185, 200 (100); replace frame coaling station with concrete, and erect water tank, Paintsville, Ky., $193,500 (100); construction of spur to serve mine development, Nigh, Ky., $475,000 (100); construction of concrete coaling station to replace frame structure, Martin, Ky., $109,500 (100); construction of tracks to serve coal mine, Meade Fork, Va., $234,400 (100); construction of tracks to serve coal mine, Myra, Ky., $427,600 (100); extension of shop building, including installation of machinery and equipment, Russell, Ky., $834,000 (100); revision of grade, Russell, Ky., $123,600 (100); extension of tracks in two yards, Stevens, Ky., $251,425 (100); renewal of bridge, Richmond, Ind., $190,000 (100); installation of fire curtains, supplemented by automatic sprinkler systems, Newport News, Va., $195,300 (100).

(Pere Marquette district) *Grade Crossing Eliminations:* Subways: Edsel Ford Expressway, Herbert street, Detroit, Mich., state and federal aid funds, $446,000 (55); East Paris, Mich., state and federal aid funds, $320,000 (25).

Important Work Undertaken: Construction of track, building, and installation of steel storage tanks for servicing Diesel locomotives, Wyoming, Mich., $330,000 (75); installation of C. T. C., including the construction of new passing tracks and the relocation and retirement of existing tracks, St. Joseph, Mich., to E. Saugatuck, $425,000 (10); revision of alinement, Brighton, Mich., $105,000 (100).

Chicago & Eastern Illinois

Important Work Undertaken: Modernization of power plant, including a new boiler, stoker, coal and ash-handling equipment, and an additional generator, Danville, Ill., $332,000 (65); installation of C. T. C., including necessary track changes and the extension of 14 passing sidings, Clinton, Ind., to Evansville, $753,676 (100); revision of alinement incidental to curve reduction, Decker, Ind., $136,321 (100).

Chicago & North Western

Grade Crossing Eliminations: Overcrossings: Barr, Ill., work financed and performed by county, $21,663 (100); Union Grove, Ill., work financed and performed by state, $232,863 (10); Highway No. 84, Cedar Rapids, Iowa, $135,039 (started).

Important Work Undertaken: Construction of addition to Chicago Ave. enginehouse, including heating, lighting and plumbing systems and relocation of machine shops, Chicago, $162,000 (98); construction of Diesel locomotive servicing and repair shop building complete with all incidental facilities and track alterations, Chicago, $1,822,000 (10); installation of C. T. C., including necessary track changes, West Chicago, Ill., to Nelson, $1,590,265 (40); construction of a multiple-span bridge on concrete pile substructure, including revision of grade on double track approach, Denison, Iowa, $284,930 (60); construction of multiple-span double-track bridge on concrete pile substructure, Arion, Iowa, $234,890 (60); construction of a multiple-span double-track bridge on concrete pile substructure, including revision of grade on approaches, Dunlap, Iowa, $235,350 (60); revision of grade over bridges, including new waterway openings, Vail, Iowa, to Denison, $172,000 (40); construction of car unloader at Grain Elevator, Council Bluffs, Iowa, $236,955 (90); relocation of lead track and extension of 12 yard tracks, Clinton, Iowa, $198,000 (100); reconstruction of three bridges, including revision of grades, Belle Plaine, Iowa, $134,100 (65); construction of engine servicing facilities, including necessary track changes, Council Bluffs, Iowa, $128,800 (100); reconstruction of portion of bulkhead, fender and knuckle-fender at car-ferry slip, Manitowoc, Wis., $168,000 (60).

Chicago & Western Indiana

Important Work Undertaken: Modernization and improvement of Dearborn passenger station, including the addition of a mezzanine waiting room, and improvements to ticket office, concourse, and waiting rooms, Chicago, $653,000 (100).

Chicago, Burlington & Quincy

Grade Crossing Eliminations: Subways: Ranchester, Wyo., $150,000 (100); two highways, Tecumseh, Neb., $82,000 (5); Norway, Neb., $60,000 (15).

Important Work Undertaken: Installation of C. T. C., including necessary track changes, Old Monroe, Mo., to Machens, $430,966 (10); installation of C. T. C., including necessary track changes, Balfour, Iowa, to Pacific Junction, $312,360 (3); revision of alinement, Daggets, Ill., $333,972 (60); relocation of main and yard tracks, Beardstown, Ill., $285,504 (40); installation of facilities for servicing Zephyr streamliners, Chicago, $297,863 (100); addition to dock unloading spaces at freighthouse, Chicago, $137,113 (100); rearrangement Murray Yard, North Kansas, Mo., $1,179,903 (30); rearrangement of classification yard, North Kansas City, Mo., $140,696 (60); revision of grade, Mark, Mo., $167,024 (15); revision of grade, Cullom, Neb., $220,273 (75); installation of mechanical car washer, Denver, Colo., $127,884 (100); reduction of curves and revision of grade, Plattsmouth, Neb., $214,310 (75); installation of telephone and teletype channels on system, $689,768 (100); reconstruction of bridge, Farley, Mo., $700,000 (100); construction of barge dock, Lewiston, Ill., to Illinois river, $651,935 (100); construction of new yard, West Quincy, Mo., $938,702 (100); revision of grade, White Rock, Mo., to Riverland, $262,688 (100); relocation of main track, Burke, Ill., $212,141 (100); reduction of curvature, Greenwood, Neb., $142,493 (100).

Chicago, Milwaukee, St. Paul & Pacific

Grade Crossing Eliminations: Subways: West Allis, Wis., with state and railway funds, $70,000 (100). Reconstruction of Existing Grade Crossing Structures: Rodney, Ia., railway funds, $12,000 (100); Morningside, Ia., railway funds, $13,000 (100); Richland, Ia., with federal funds, $100,000 (100); Cowgill, Mo., with railway funds, $9,000 (100).

Important Work Undertaken: Construction of flat yard to replace eastbound hump yard to accommodate the larger trains, Bensenville, Ill., $425,000 (100); revision of alinement and grade, Glenham, S. D., to Selby, $650,000 (100); construction of storage yard, Milwaukee, Wis., $160,000 (100); enlargement of Glendale yard, Milwaukee, Wis., $180,000 (100); enlargement of west yard, Milwaukee, Wis., $400,000 (40); reconstruction of pier protection of Menominee river bridge, Milwaukee, Wis., $148,000 (95); reconstruction of additional tracks and 1,800-ft. retaining wall, Milwaukee, Wis., $274,000 (100); construction of freighthouse, Chicago, $400,000 (100); construction of new shop facilities, Milwaukee, Wis., $1,457,000 (100);

construction of additions to the Diesel-locomotive service building, including installation of 80-ton drop table and 30-ton crane, Chicago, $226,430 (100); construction of warehouse and office building, Butte, Mont., $102,000 (100).

Chicago, Rock Island & Pacific

First Track: Ainsworth, Iowa, to Brighton, 17.21 mi. (line revision).

New Road Under Construction: McPherson, Kans., 3.97 mi. (line revision).

Grade Crossing Eliminations: Overcrossings: Part of Illinois river bridge under construction by state, Peoria, Ill.; portion over railway, $40,000 (90); Roosevelt road, constructed by state, Little Rock, Ark., $70,000 (65); U. S. highways 66 and 81, El Reno, Okla., $201,000 (100); relocation of U. S. highway 81, McPherson, Kans., $186,300 (started); highway K-10 under construction, Paxico, Kan., $38,000 (15). Subways: U. S. highway 6, Oak Forest, Ill., $356,400 (50).

Important Work Undertaken: Construction of 4½-mi. connection with National Lead Company tracks, Butterfield, Ark., $319,332 (100); construction of lead track and freighthouse, Dallas, Tex., $197,840 (80).

Clinchfield

First Track: Caney Junction, Va., to Moss, 14.54 mi.

Grade Crossing Eliminations: Subway: Love station, constructed with federal aid funds $60,000 (100).

Delaware, Lackawanna & Western

Grade Crossing Eliminations: Subways: Extension of East Amherst Street across properties of the D. L. & W. and Erie, Buffalo, N. Y., city pays 50 per cent, each railroad 25 per cent, $321,000 (50).

Denver & Rio Grande Western

Important Work Undertaken: Install 134 mi. of heavier-section rail, $2,730,000 (90); install heavier section of secondhand rail on branches, $750,000 (90); repair and rehabilitate 68 company cottages, Helper, Utah, and Soldier Summit, $306,000 (100); install automatic block signals, including necessary track changes, South Denver, Colo., to Bragdon, $324,000 (100).

Duluth, Missabe & Iron Range

First Track: Whyte, Minn., to Sawbill Landing, 23.20 mi.

New Road Under Construction: Sawbill Landing, Minn., to Forest Center, 7.70 mi.

Erie

Grade Crossing Eliminations: Reconstruction of Existing Grade Crossing Structures: Overhead bridge, Southfields, N. Y., work done by state with federal aid (100); bridge over State highway route No. 4, Warren Point, N. J., work done by state with federal aid (98). Revision of Highway: Extension of East Amherst Street, Buffalo, N. Y., work being done by Erie and D. L. & W., joint with city (50).

Important Work Undertaken: Construction of passenger station including rearrangement of tracks, Akron, Ohio (98).

Florida East Coast

First Track: Fort Pierce, Fla., to Mantola, 29.30 mi.

Fort Street Union Depot

Grade Crossing Eliminations: Subways: Detroit, Mich., Fort Jefferson connection to the John C. Lodge Expressway, $600,000 (started); Detroit, Mich., expressway crossing, $850,000 (started).

Important Work Undertaken: Detroit, Mich., modernization and rehabilitation of passenger station, $1,000,000 (90).

Georgia

Grade Crossing Eliminations: Subways: James, Ga., done with state and federal funds, $77,918 (100).

Important Work Undertaken: Installation of automatic block signals, including necessary track work, Augusta, Ga., to Atlanta, $411,000 (100).

Great Northern

Grade Crossing Eliminations: Overcrossings: 7th street, Minneapolis, Minn., with railway and state funds, $9,900 (started); Great Falls, Mont., state expense, $1,905 (100); Scenic, Wash., with railway and state funds, $23,985 (100); Northport, Wash., at state expense, $27,500 (100); Minot, N. D., $15,000 (started). Subways: Malta, Mont., at state expense, $87,090 (100); Brewster, Wash., with railway and state funds, $5,020 (started); St. Germain street, St. Cloud, Minn., at state expense, $164,300 (started); repairs to subway, Nelson, Minn., $8,500 (100); 7th street, Minneapolis, Minn., $37,500 (started); Minneapolis, Minn., Hopkins & Wayzata, with railway and state funds, $26,300 (100); Lafayette Ave., St. Paul, Minn., $27,500 (10); Raymond Ave., St. Paul, Minn., $21,200 (100); two bridges, Everett, Wash., $6,300 (started); pedestrian bridge, 24th Ave., Seattle, Wash., $5,600 (100); Belknap St., Superior, Wis., $50,100 (started); 21st St., Superior, Wis., $24,300 (started); Washington Ave., joint with Minneapolis & St. Louis, Minneapolis, Minn., $54,200 (started); Dalton, Minn., $4,900 (10); Marion St. foot bridge, Seattle, Wash., $1,800 (started); St. Paul, Minn., $17,175 (started); Maple Plain, Minn., $4.500 (started); Jackson St. pedestrian, Seattle, Wash., $1,050 (started); 10th Ave. foot bridge, Duluth, Minn., $568 (started); 19th Ave., Minneapolis, Minn., $11,940 (started); Wall St., Sioux City, Iowa, $4,500 (started); widen overcrossing, Hopkins, Minn., at state expense (100).

Important Work Undertaken: Construction of grain storage elevator, Allouez, Wis., $1,502,000 (100); installation of block signals and extension of passing sidings, Lyndale, Minn., to St. Cloud, $231,550 (100); construction of office building and passenger station, Willmar, Minn., $153,000 (95); installation of automatic block signals, including necessary track changes, Fargo, N. D., to Surrey, $790,245 (90); Diesel repair shop, Havre, Mont., $381,700 (100); Diesel shop and oil-storage facilities, Great Falls, Mont., to Laurel, $201,500 (100); replacement of boilers and stokers, Havre, Mont., $101,900 (100); revision of alinement, Camden, Wash., $300,000 (100); repairs to bridges and culverts, Spokane, Division, $111,850 (100); repairs to bridges and culverts, Butte, Mont., division, $183,335 (100); repairs to bridge, Silvania, Wash., $249,000 (100); struction of mine tracks, Hibbing, Minn., $129,620 (100); construction of car-repair shed, Seattle, Wash., $243,000 (95); repairs to ore docks, Allouez, Wis., $190,000 (100); construction of hotel for employees, Appleyard, Wash., $135,200 (100); reinforce bridge, Sandstone, Minn., $117,900 (10); repairs to bridges and culverts, Butte, Mont., Division, $124,730 (90); revision of alinement at South Frazer Mine, Buhl, Minn., $298,500 (100); construction of inspection pits for Streamliners, Seattle, Wash., $142,000 (started); repairs to ore docks, Allouez, Wis., $250,000 (25).

Restore roadbed section, apply ballast and install 28 mi. of 112-lb. rail, Wingate, Mont., to Philbin, $431,140 (100); widen embankment, install additional ballast and lay 24 mi. of 112-lb. rail, Williston, N. D., to Snowden, Mont., $264,554 (100); widen embankment and install 15 mi. of 112-lb. rail, Lohman, Mont., to Havre, $203,352 (75); widen embankment and install 25 mi. of 112-lb. rail, Shelby, Mont., to Cut Bank, $306,370 (100); widen embankment, install additional ballast and 8 mi. of 112-lb. rail, Elmira, Ida., to Colburn, $116,400 (100); widen embankment, install additional ballast and 15 mi. of 112-lb. rail, Lamona, Wash., to Odessa, $304,250 (100); widen embankment, install ballast, and lay 12 mi. of 112-lb. rail, Edmonds, Wash., to Interbay, $224,500 (100); restore embankment, install ballast, and lay 14 mi. of 112-lb. rail, Harlem, Mont., to Zurich, $164,300 (100); apply ballast, widen embankment, and lay 30 mi. of 112-lb. rail, Cambridge, Minn., to Coon Creek, $622,650 (95); widen embankment, install ballast, and lay 15 mi. 112-lb. rail, Juanita, N. D., to Dundas, $257,800 (100); widen embankment, install ballast, and lay 11 mi. of 112-lb. rail, Zurich, Mont., to Adams, $180,720 (100); restore embankment, apply ballast, and lay 26 mi. of 112-lb. rail, Cut Bank, Mont., to Blackfoot, $590,000 (10); restore embankment, apply ballast, and lay 19 mi. of 112-lb. rail, Shelby, Mont., to Cut Bank, $438,305 (100); restore embankment, install ballast, and lay 8 mi. of 131-lb. rail, Crossport, Ida., to Bonners Ferry, $213,600 (100); widen embankment, install ballast, and lay 13 mi. of 112-lb. rail, Lohman, Mont., to Havre, $305,000 (15); restore embankment, apply ballast, and lay 6 mi. of 112-lb. rail, Col. Falls, Mont., to Whitefish, $156,600 (100); widen embankment and lay 5 mi. of 131-lb. rail, Troy, Mont., to Yakt, $152,950 (100); restore embankment, install ballast, and lay 5 mi. of 112-lb. rail at Atwater, Minn., to Kandiyohi, $104,500 (80); restore embankment, install ballast, and lay 7 mi. of 112-lb. rail, Dean, Wash., to Hillyard, $181,350 (10); widen embankment, install ballast, and lay 16 mi. of secondhand 110-lb. rail, Richmond, Minn., to Willmar, $185,950 (100); renew ballast and lay 10 mi. of secondhand 90-lb. rail, Nash, N. D., to Crystal, $100,500 (100); renew ballast and lay 27 mi. of secondhand 85-lb. and 90-lb. rail, Aloe, Mont., to Sweet Grass, $308,650 (started); renew ballast and lay 8 mi. of secondhand 90-lb. rail, Paynesville, Minn., to New London, $100,975 (started); renew ballast, Mesabi Division, $139,000 (85); renew ballast, Dakota (Mont.) Division, $156,400 (100); renew ballast, Willmar (Minn.) Division, $320,000 (100); renew ballast, Butte (Mont.) Division, $160,000 (75); renew ballast, Kalispell (Mont.) Division, $151,000 (100); renew ballast, Spokane (Wash.) Division, $123,000 (100).

Illinois Central

Important Work Undertaken: Improvements to pier freighthouse facilities, South Water street, Chicago, $119,380 (100); renewal of bridge approaches, Finney, Ill., $100,000 (100); installation of new girders, Boon river bridge, Webster City, Iowa, $106,000 (50); rebuild bridge over Little Sioux river, Cherokee, Iowa, $144,500 (100); revise grade of track and bridges, East Cairo, Ky., to Wickcliffe, $170,000 (100); eliminate hump in yard, Nonconnah, Tenn., $150,000 (100); replace incline for Mississippi river transfer boat, Trotters Point, Miss., $221,000 (100)

Illinois Terminal

Important Work Undertaken: Replace three 60-ft. deck-plate-girder spans with two 60-ft. deck-plate-girder spans and one 168-ft. through-rivited-truss span, Wood River, Ill., $250,000 (70).

Indianapolis Union

Grade Crossing Eliminations: Subways: Under four tracks, Shelby street, Indianapolis, Ind., cost divided 80 per cent by other agencies and 20 per cent by railway, $342,592 (35); under four tracks, West Morris street, Indianapolis, Ind., cost divided 80 per cent by other agencies, 20 per cent by railway, $390,000 (100).

International-Great Northern

Important Work Undertaken: Installation of automatic color-light block signals, Taylor, Tex., to Hearne, and Palestine, Tex., to Oakwood, $214,990 (100); installation of automatic color-light block signals, Oakwood, Tex., to Hearne, $383,310 (100).

Kansas City Southern

Important Work Undertaken: Construction of new Diesel service and repair facilities, Pittsburg, Kans., $293,568 (80); reconstruction of superstructure and lengthen Arkansas river bridge, Redland, Okla., $851,264 (57); reconstruct four shipping galleries and install new conveyor machinery in grain elevator, Port Arthur, Tex., $135,700 (100); restoration of 2½ mi. of main track which had been washed out and abandoned, in Windsor, Okla., $148,213 (100); purchase of ½ interest in 6 mi. of industrial trackage, West Lake, La., $125,000 (100).

Lakefront Dock & Railroad Terminal

Important Work Undertaken: Construction of a coal and ore-handling facility, including a yard having 56 mi. of track and a capacity of 5,400 cars, three waterfront piers, three slips and many incidental buildings, Toledo, Ohio, $18,500,000 (85).

Lehigh Valley

Important Work Undertaken: Construction of freighthouse and office, Bronx Terminal, N. Y., $125,000 (100); construction of freighthouse, East 34th St., N. Y., $400,000 (50).

Louisiana & Arkansas

Important Work Undertaken: Construction of new yard track, water station, oil station, enginehouse and other mechanical facilities, North Baton Rouge, La., $210,000 (100).

Louisville & Nashville

New Road Under Construction: Duo, Ky., to Deane, 16.70 mi.

Grade Crossing Eliminations: Overcrossings: Butler, Ky., $135,000 (100); Bowling Green, Ky., $71,000 (100); between Rockland, Tenn., and Hendersonville, $100,000 (100); Morley, Tenn., $175,0000 (85); LaFollette, Tenn., $79,000 (100); Benton, Tenn., $271.575 (100); Lewisburg, Tenn., $150,000 (50); Repton, Ala., $185,000 (10); Dryden, Va., $100,000 (5); Ranger, N. C., $150,000 (25).

Important Work Undertaken: Replace 11,627 ft. of timber trestle approach to Ohio river bridge, with reinforced-concrete trestle, Henderson, Ky., $970,000 (100); installation of C. T. C., including necessary track changes, Strawberry, Ky., to Henderson, $856,764 (100); reduction of grade, Benton Cut, Tenn., $137,673 (10); installation of two escalators from track level to concourse of passenger station, joint with N. C. & St. L., Nashville, Tenn., $100,057 (started); construction of repair shop, including facilities, tools and equipment for servicing Diesel locomotives, Louisville, Ky., $361,372 (50); replace deck-girder viaduct on steel towers with deck-girder spans on concrete piers designed for heavier loading, Corbin, Ky., $169,466 (60); reconstruction of bridge over West Pascagoula river, Gautier, Miss., $797,526 (95); installation of C. T. C., including necessary track changes, Irvine, Ky., to Perritt, $860,015 (5); reconstruction of transfer-table pits, South Louisville, Ky., $129,494 (started); replace and rearrange mechanical facilities, including new coaling plant, Boyles, Ala., $301,291 (20); improvement in weighing and billing facilities, De Coursey, Ky., $166,120 (5); rearrangement of freight car repair facilities, South Louisville, Ky., $178,188 (started).

New Lines Under Survey: Clover Fork branch of Leatherwood creek to a point east of Delphi Post Office, Ky., 5.90 mi.

Maine Central

Grade Crossing Eliminations: Subway: Fairfield, Me., with federal funds, $276,000 (100).

Important Work Undertaken: Construction of freighthouse and incidental track changes, Bangor, Me., $185,000 (started).

Massena Terminal

Important Work Undertaken: Renewal of bridge over the Grasse and Racquette rivers, and construction of four grade separations. Massena, N. Y., $1,100,000 (100).

Minneapolis & St. Louis

Grade Crossing Eliminations: Subway: Thirteenth st., Mason City, Iowa, work done by state with federal funds, $150,000 (90).

Missouri-Kansas-Texas

Grade Crossing Eliminations: Overcrossings: Twenty-third St., Oklahoma City, Okla., $125,300 (100); U. S. highway 169, Coffeyville, Kans., $99,230 (20); U. S. highway 29, Austin, Tex., $246,000 (100)); U. S. highway 20, Sprinkle, Tex., $466,000 (100). In all cases entire cost borne by state with federal funds.

Important Work Undertaken: Construction of wye and storage tracks in connection with spur built by Government to serve construction of Whitney Dam, Whitney, Tex., railroad portion, $44,000 (100).

Missouri Pacific

Second Track: At Elm Park, Mo., 0.45 mi.

Grade Crossing Eliminations: Overcrossings: Sabula, Mo., with federal funds $100,000 (100); U. S. 69, Wagoner, Okla. $75,000 (100); Chapel road, Little Blue, Mo., $15,000 (100); Arkansas route 20, Barton Junction, Ark., $100,000 (5); Subway; Thirty-ninth st., Elm Park, Mo., $8,400 (100).

Important Work Undertaken: Construction of Diesel-locomotive shop, St. Louis, Mo., $250,000 (40); construction of inspection pits for Diesel passenger locomotives, St. Louis, Mo., $146,300 (50); revision of grade, Granite Bend, Mo., $484,000 (100); construction of car-fabricating shop, DeSoto, Mo., $750,000 (100); replacement of semaphore signals with color lights, Piedmont, Mo., to Poplar Bluff, $105,000 (2); revision of alinement, Bismarck, Mo., to Piedmont, $2,000,000 (10); extension of five yard tracks, Texarkana, Ark., $237,000 (100); reconstruction of three bridges, Nuckles, Ark., $161,000 (100); installation of C. T. C., including necessary track changes, Little Rock, Ark., $188,000 (45); removal of 2.59 mi. of westbound main, Nuckles, Ark., $172,500 (100); reconstruction of bridge, including raising grade 2½ ft., Sterlington, La., $139,800 (5); revision of grade and alinement, Little Blue, Mo., to Elm Park, $726,000 (100); rearrangement of miscellaneous facilities on account of flood wall construction, Kansas City, Mo., $253,400 (100); construction of flood protection, Chester, Ill., section 1, $370,000 (100); section 2, $1,226,000 (10).

Relay 12½ mi. of rail and apply new gravel ballast, Litroe, La., to Marion, 111,100 (85); apply 605,000 second hand tie plates at various points, $156,000 (100); relaying 19.95 mi. of rail and installation of ballast, Yuma, Kans., to Republic, $140,744 (95); relay 60.11 mi. of rail and apply slag ballast, Lindsborg, Kans., to Hoisington, $632,000 (88); relay 50.22 mi. of rail and apply slag ballast, Hoisington, Kans., to McCracken.

(Gulf Coast Lines) *First Track:* Baton Rouge, La., to Anchorage, 2.21 mi.

Important Work Undertaken: Installation of 22 mi. of C. T. C., including necessary track changes, Algoa, Tex., to Angleton, $196,640 (100); construction of 8,392 ft. of main track on the west side, and 3,155 ft. on the east side of the Mississippi river in connection with the use of Baton Rouge bridge, including the installation of automatic block signals and 7,622 ft. of yard tracks, Baton Rouge, La., $644,600 (100).

(Cairo & Thebes) *Important Work Undertaken:* Construction of diversion channel, Cache river, Cache, Ill., $162,000 (25).

Nashville, Chattanooga & St. Louis

Grade Crossing Eliminations: Overcrossings: Huron, Tenn., $10,000 (100).

Important Work Undertaken: Revision of alinement, involving 16.6 mi. of new track, elimination of 36 curves and reduction of 23 curves to 2 deg. or less, Atlanta, Ga., division, $1,110,000 (100); revision of alinement, involving 13.4 mi. of new track to eliminate six curves and reduce 43 to less than 2 deg., Chattanooga, Tenn., division, $1,210,000 (100); revision of alinement, involving 24.6 mi. of new track to eliminate 20 curves and reduce 51 curves to 2 deg. or less, P. & M. division, $1,300,000 (100); installation of C. T. C., including necessary track changes, Cartersville, Ga., to Chattanooga, Tenn., $355,000 (100).

New York Central

Grade Crossing Eliminations: Overcrossings: Lakeland Freeway, E. 99th st., Cleveland, Ohio (100). Subways: West Bancroft st., Toledo, Ohio (100); Willow Freeway, Cleveland, (Marcy) Ohio (85). Highway Closed: Nine crossings, Mishawaka, Ind. (100); one crossing, Adrian, Mich. (100); West 61st st., Cleveland, Ohio (100).

Important Work Undertaken: Construction of fuel-oil facilities for servicing Diesel locomotives at station platforms, Buffalo, N. Y. (100); revision of alinement, and grade, involving the construction of twin box culverts to replace an existing bridge, Canastota, N. Y. (100); installation of electric interlocking, additional automatic signals, revision of tracks, extension of platform and construction of other facilities to improve suburban train operations, Crestwood, N. Y. (100); construction of new passenger-station facilities, Dunkirk, N. Y. (50); construction of servicing facilities for Diesel locomotives, Harmon, N. Y. (100); major revision of alinement, involving purchase of land, construction of new river channel, side tracks, highway bridges and other facilities, Little Falls, N. Y. (95); extension of alternating current distributing system and incidental facilities, Grand Central Terminal, New York (15); construction of additions and alterations to the store of M. H. Lamston, Inc., New York (100); construction of new boiler plant, Utica, N. Y. (100); filling pile-bent trestle, Iona Island, N. Y. (18); reconstruction of bridges, Albany, N. Y. (50); construction of office building, including mess hall, lockers, toilets, and stokerized boilers, Ashtabula, Ohio, (80); construction of tool room and electric shop including Mono-rail crane system (Collinwood), Cleveland, Ohio, (99); installation of 70-ton crane replacing crane runway, (Collinwood) Cleveland, Ohio, (60); extension of electric locomotive repair shop, including additional tracks, Cleveland, (Collinwood), Ohio (100); replacement of enginehouse roof, Cleveland, (Linndale) Ohio (20); construction of passenger terminal improvements, Toledo, Ohio (started); construction of additions, extensions and alterations to engine-terminal facilities, (Englewood) Chicago (90).

(Michigan Central) *Second Track:* 1.60 mi., near Detroit, Mich.

Grade Crossing Eliminations: Subways: U. S. highway 112, Willow Run, Mich., work done by state highway and railway with federal and state funds (75).

Important Work Undertaken: Construction of cinder pits serving four tracks, including the installation of mechanical cinder-handling and storage equipment, and the reconstruction of 1.7 mi. of track, Detroit, Mich. (20); construction of two circuit-breaker houses, including new switch boards and improved equipment, Electric Zone, Windsor, Ont. and Detroit, Mich. (20).

(Cleveland, Cincinnati, Chicago & St. Louis) *First Track:* West of Harrisburg, Ill., 2.52 mi.

Grade Crossing Eliminations: Revision of highway: Sherwood, Ohio, with federal aid funds except cost of right of way, 15 per cent of which was borne by railroad and 85 per cent by state (100).

Important Work Undertaken: Construction of extensions on each side of multiple-arch bridge, including the guniting and pressure grouting of exposed portions of arch piers, Weisburg, Ind. (100); construction of 6-ft. 6-in. additions on each side of concrete arch bridge, including the lining with 2 ft. 6 in. of reinforced concrete and the extension of wing walls and construction of pipe hand rails, Bonnell, Ind. (100); construction of 31,000 ft. of track serving the plant of the Frigidaire division of General Motors Corporation, including 176-ft. tunnel under main tracks, Moraine, Ohio, (100); construction of 2.53 mi. extension to coal mine spur, including shifting and storage tracks, Harrisburg, Ill. (100); construction of extension to the sides of multiple-arch bridge, including the replacement of masonry in parapets and wing walls, Grafton, Ohio (10); installation of automatic signals including the remote control of three switches, installation of higher speed turncuts in passing tracks and electric locks on all hand-operated, main-track switches, Paget, Ohio, to Columbus (100); installation of automatic signals with remote control at various locations; construction of extensions to passing tracks involving the installation of higher speed turnouts, Columbus, Ohio to Springfield (100); installation of automatic signals, Glen Echo, Ohio to Springfield (100).

(Pittsburgh & Lake Erie) *Important Work Undertaken:* Construction of car repair yard and facilities, including office and other buildings, McKees Rocks, Pa. (42); installation of C. T. C., including necessary track changes, involving the consolidation of car shops, construction of additional yard facilities and a new yard office, State Line, Ohio to East Youngstown (32); rearrangement of lead tracks and lengthening of turnouts so as to increase the capacity of yard, Wylie, Pa. (started); installation of a three-point continuous 120-ft. turntable, including the stabilization of center foundation, East Youngstown, Ohio (18). Approximate cost of the foregoing projects: $17,348,100.

New York, Chicago & St. Louis

Grade Crossing Eliminations: Overcrossing: Rice avenue, Girard, Pa., constructed by state with federal funds, $194,000 (80). Subway: North Noble road, East Cleveland, Ohio, $138,000 (100).

Important Work Undertaken: Construction of additional storage tracks, Cleveland, Ohio, $113,000 (100); construction of Diesel locomotive repair facilities, Cleveland, Ohio, $341,000 (100); construction of additional yard tracks, South Lorain, Ohio, $144,000 (100); construction of enginehouse, machine shop and incidental facilities, Bellevue, Ohio, $1,429,000 (100); reconstruction of bridge, Bellevue, Ohio, $105,000 (100); relocation of westbound yard, Bellevue, Ohio, $156,000 (100); construction of office building, Bellevue, Ohio, $180,000 (100); installation of C. T. C., including extension of passing sidings, Arcadia, Ohio, to New Haven, $547,000 (60); installation of C. T. C., including extension of passing sidings, South Whitley, Ind., to Claypool, $203,000 (100); installation of C. T. C., including the extension of passing sidings, Arcadia, Ohio, to St. Marys, $657,000 (70); construction of store house, Lima, Ohio, $507,000 (50); revision of grade and alinement, Oakland, Ill., to Hales, Ind., $630,000 (96); renewal of bridge, Mackinaw Dells, Ill., $216,000 (100).

New York, New Haven & Hartford

Grade Crossing Eliminations: Overcrossings: Hamden, Conn., $435,000 (70); Wallingford, Conn., $140,000 (100); Vernon, Conn., $60,000 (100). Subways: Buckland, Conn., $75,000 (100). These bridges constructed in connection with the extension of Wilbur Cross Parkway and Highway and with state funds. Reconstruction of bridges: Hall ave., Meriden, Conn., $30,000 (100); Cranston st., Providence, R. I., $25,000 (100); Mt. Wayte ave., with federal funds, Framingham, Mass., $50,000, (50); Main st., Blackstone, Mass., with state funds, $50,000 (10).

Important Work Undertaken: Construction of 11,000-23,000-440 volt busses, Cos Cob, Conn., $458,270 (99); installation of Capacitors at certain transformer stations in the electric zone, $239,600 (99); installation of automatic block signal system, Rye, N. Y., to Mt. Vernon, $715,000 (100); alterations to signals and tracks, Providence, R. I., to Brayton Ave., $378,300 (100); construction of Diesel locomotive shop facilities, New Haven, Conn., $675,000 (95); installation of car washing facilities, Boston, Mass., $150,000 (100); alterations to the motor storage yard, New Haven, Conn., $119,500 (51); reconstruction of bridge, New Haven, Conn., $230,000 (20); extension to freighthouse, Harlem river, N. Y., $170,000 (100); installation of steam line between yard and passenger station, Providence, R. I., $175,000 (100); installation of steam line between office building, Y. M. C. A. and freighthouse, New Haven, Conn., $100,000 (100); construction of car retarders in westbound classification yard, New Haven, Conn., $113,539 (100); installation of automatic block signal system, Boston Sw., R. I., to South Worcester, Mass., $168,200 (100); installation of teletypes and associated equipment in conjunction with I. B. M. Co. machines, $428,900 (35); construction of new office building, New Haven, Conn., $2,250,000 (100); revision of alinement, Shannock, R. I., $205,000 (100); installation of automatic block signal system, Hopewell Junction, N. Y., to Holmes, $112,000 (started); installation of automatic block signal system, Poughkeepsie, N. Y., to Hopewell Junction, $108,100 (started); alterations to tracks, Cranston, R. I., $242,000 (20).

Norfolk & Portsmouth Belt Line

Important Work Undertaken: Modernization of engine terminals, including construction of 80-ft. inspection pit, 50-ton concrete coaling and sanding station, concrete ash hoist and an inside drop pit, Port Norfolk, Va. (50).

Norfolk & Western

New Road Under Construction: Cooper, W. Va., to Lick Branch, 5.15 mi., Peebles, Ohio, to Mineral Springs, 8.00 mi.

Grade Crossing Eliminations: Overcrossing and Subway: (triple-deck structure) Gilmerton, Va., joint with Commonwealth of Va., $1,100,000 (20). Subways: Two grade crossings, Bristol, Va., $78,000 (75); highway bridge over Tug river between Matewan, W. Va., and Buskirk, Ky., eliminating two grade crossings, Matewan, W. Va., railroad portion, $4,250 (100).

Important Work Undertaken: Construction of fireproof pier, including a steel and metal warehouse, two land warehouses, two gantry cranes, concrete driveways, 150-ton track scale, fumigating plant, garage and repair shop, stevedore building, and necessary tracks, Lambert Point, Va., $5,910,000 (95); construction of five story office building, including office furniture and steam line from power house, Bluefield, W. Va., $700,000 (10); install steel girders or pre-cast concrete slabs, rebuild backwalls and piers in 20 bridges, Radford, Va., to Bristol, $213,850 (50); install steel girders or pre-cast concrete slabs, rebuild backwalls and piers in 10 bridges, Columbus, Ohio, district, $114,800 (25); revision and extension of track layout, extension of engine inspection pit, construction of ash hoist, sand-storage and drying facilities and a new coaling station, Shenandoah, Va., $121,000 (60); construction of 5.15 mi. of double-track main line, including a double-track tunnel about 6,900 ft. long, construction of new coaling station and turn table, installation of position-light automatic signal system, and construction of high and low tension signal transmission lines, Bluefield, W. Va., to Iaeger, and Cooper, W. Va., to Lick Branch, $11,912,000 (10); purchase and installation of two electrically operated revolving-belt trimmers at coal pier No. 4 and one bulldozer trimmer at coal pier No. 5, Lambert Point, Va., $107,000 (started); installation of crossovers, 3,956 ft. of track, C. T. C. type machines and electro-pneumatic switch movements at two interlocking plants, including revision of signals and coded track circuits, Forest, Va., to Roanoke, $466,000 (15); purchase land and construct three-level passenger station (joint with C. & O.) including train sheds, platforms, driveways and rearrangement of both N. & W. and C. & O. tracks, Waynesboro, Va., $550,000 (10); construction of about 8 mi. of new main track including installation of C. T. C., Peebles, Ohio, to Mineral Springs, $2,948,000 (85); construction of industrial track 1,469 ft. long, including two bridges over New river to serve the American Viscose Corporation, Radford, Va., $397,000 (100); construction of spur track about 2 mi. long, and 24,686 ft. of track to serve coal company, Lenore branch, W. Va., $319,000 (100); construction of main spur 5 mi. long, including 1.5-mi. siding, and 17,145 ft. of tracks, Tug Fork branch, W. Va., $1,253,600 (85).

Modernization of passenger station including installation of new seating, lighting, plumbing, restaurant facilities, train sheds and escalators leading from platforms to waiting room level, Roanoke, Va., $345,000 (started); rearrangement of boiler house and its equipment, rearrangement of interior of coach yard building, conversion of portion of freight station into locker rooms, and construction of inspection pit with parallel concrete jacking pads, Norfolk, Va., $155,000 (100); construction of brick and concrete enginehouse and other terminal-facility, buildings with incidental engine-service facilities and trackage, Winston-Salem, N. C., $357,000 (10); construction of new enginehouse and other terminal facility, buildings, including incidental engine-service facilities and trackage, Pulaski, Va., $195,000 (5); modernization of wood-preserving plant, including the installation of Taylor-Colquitt vapor-drying apparatus and other incidental facilities, Radford, Va., $150,000 (started).

Northern Pacific

First Track: New Salem, N. D., to Glenullen, 16.38 mi.

Important Work Undertaken: Construction of Diesel shop, including additions to store house, oil house and fuel and sanding facilities, St. Paul, Minn., $610,000 (100); construction of addition to present freighthouse, including two enclosed concrete platforms, Billings, Mont., $385,000 (85); construction of additions, improvements and alterations to machine shop, converting its use to service and repair Diesel locomotives, Glendive, Mont., $470,000 (50); construction of power plant buildings, including ash hopper, coal bunker, new boilers and fuel system, Laurel, Mont., $395,000 (100); construction of garage addition to freighthouse, including the installation of fuel storage tanks and incidental facilities, Butte, Mont., $140,000 (25); construction of warehouse, office buildings and covered platform, Missoula, Mont., $205,000 (100); reconstruction of bridge over Clarks Fork river, Thompson Falls, Mont., $390,000 (35); construction of brick freight warehouse and office building, including incidental heating and plumbing facilities, Tacoma, Wash., $173,700 (100).

Northwestern Pacific

Grade Crossing Eliminations: Subways: San Rafael, Calif., constructed with state and federal funds, $76,000 (75).

Pennsylvania

Grade Crossing Eliminations: Overcrossings: Howe's Lane, New Brunswick, N. J. (65); York, Pa. (10); State highway 1 and U. S. 40, Dodson, Ohio (25); U. S. highway 40, Vandalia, Ill. (75); Tri-state highway, Bernice, Ill. (40); Calumet Parkway, Dolton, Ill. (40); (each of last two items is a new overcrossing, constructed with no grade crossings eliminated). Highway Closed: Private road, Lincoln University, Pa. (100); two private roads, south of Bellevue, Del. (100); private road, north of Stanton, Del. (100); private road, south of Newark, Del. (100); Williams St., Gallitzin, Pa., eliminated by agreement with Borough (100); Approximate cost of these items (railway, state and federal funds) $2,107,000.

Important Work Undertaken: Construction of a fireproof brick tower to replace wooden building and the installation of new and additional interlocking equipment, Grundy Tower, Bristol, Pa. (100); installation of two sets of machines for washing the exteriors of electric locomotives, Sunnyside yard, Long Island City, N. Y. (100); installation of air conditioning standby facilities, Sunnyside yard, Long Island City, N. Y. (60); construction of four new stores on Long Island concourse, Pennsylvania Station, N. Y. (100); construction of two freighthouses and supporting tracks, New York City (100); extension and enlargement of fresh water lines along water front and on two piers, Jersey City, N. J. (100); construction of new yard including three single-track bridges, grading, electrification, and drainage, Metuchen, N. J. (100); development of industrial sites, Washington, D. C. (100); construction of new and rearranged engine terminal facilities, York, Pa. (100); construction of employees' toilet and locker building, Wilmington, Del. (100); revision of alinement to eliminate speed restrictions, Watsontown, Pa. (62); revision of alinement to eliminate speed restrictions, Millersburg, Pa. (30); revision of alinement to eliminate speed restrictions, Kinkora Heights, Pa. (60); installation of crossovers and interlocking, McVeytown, Pa. (35); revision of alinement to eliminate speed restrictions, Huntingdon, Pa. (60); construction of Greenwich coal pier—mud fence, Philadelphia, Pa. (100); construction of Diesel locomotive terminal facilities, Harrisburg, Pa. (85); construction of Diesel locomotive terminal facilities, Enola, Pa. (30); remodeling of railroad sheds to provide passenger and express facilities, Baltimore, Md. (90); installation of two electric stairways at Union Station, Baltimore, Md. (50); dredging pierhead line, Baltimore, Md. (100); construction of tracks to serve Chrysler plant, Newark, Del. (100).

Construction of retaining wall, Steubenville, Ohio (100); reconstruction of bridge, Rosslyn, Pa. (100); renewal of signal system, Burgettstown, Pa., to State Line (100); installation of short-arm gates and flashing-light signals at nine crossings, Steubenville, Ohio, (100); renewal of signals, Uhrichsville, Ohio, to Newcomerstown (100); installation of new signal system, Cusher, Ohio, to Uhrichsville (100); raising three bridges over railroad, Pittsburgh, Pa. (100); change of line due to construction of flood control dam by U. S. government, Blairsville, Pa., to Avonmore (45); construction of middle siding, 1.59 mi. long with remote control switches connecting both main tracks at each end of siding, Blairsville, Pa. (28); construction of spur track to serve coal fields, Hecla, Pa. (100); removal of train shed at Pennsylvania Station, Pittsburgh, Pa. (100); construction of concrete platform, pipe line and drainage duct, passenger terminal, Yard D, Pittsburgh, Pa. (100); rearrangement of tracks and platforms, Yard D, Pittsburgh, Pa. (100); construction of two concrete platforms between Passenger terminal tracks, Pittsburgh, Pa. (50); extension of steam line to 28th St., including connection with Allegheny County Steam Heating Company, Pittsburgh, Pa. (100); construction of side track for Cambria-Clearfield Mining Co., Welchdale, Pa. (100); rehabilitation of passenger station platforms, Wilkinsburg, Pa. (100). Construction of 4.03 mi. of track to serve coal fields, Terre Haute, Ind. (100); construction of extra stalls in enginehouse, extension of engine pits, installation of new roof and smoke jacks and improvement of servicing tracks, Columbus,

Ohio, (55); construction of pool-car freight station, including necessary driveways and track facilities, 16th St. and Chicago River, Chicago (100); construction of pool-car freight station, including necessary driveways and track facilities between Lake and Fulton Streets, Chicago (100); construction of pool-car freight station, including necessary driveways and track facilities at Summit St. Detroit, Mich. (100); construction of two-story brick building for dining car commissary department, Chicago (55); rearrangement of yard tracks and construction of additional tracks and servicing platforms in passenger coach yard, Chicago (100); construction of facilities for storage and servicing of Diesel passenger locomotives, Chicago (100); construction of facilities for storage and servicing of Diesel passenger locomotives at passenger station, Crestline, Ohio (100); construction of facilities for the storage and servicing of Diesel locomotives at passenger station, Richmond, Ind. (100); construction of facilities for the storage, repair and servicing of Diesel locomotives, Columbus, Ohio (25); construction of service building for train and engine-service employees, Columbus, Ohio (started); The approximate cost of the foregoing projects: $18,048,355.

New Lines Projected: Bay View yard, Baltimore, Md., to the Patapsco & Back Rivers Railroad, about 6.00 mi.

(Long Island) *Grade Crossing Eliminations:* Overcrossings: Fifty-first Ave., Long Island City, N. Y. (100). Subways: Twelve grade crossings, Old Southern-Rosedale, N. Y., by raising 3½ mi. of double track and 1 mi. of four track railroad on earth embankment involving construction of five new stations and platforms, (5); three grade crossings, Farmingdale, N. Y., involving the construction of three bridges and 6,000 ft. of earth embankments (100); Cost of these projects, $8,194,000.

Important Work Undertaken: Construction of mercury-arc rectifier and associated equipment to replace rotary converter at substation, Little Neck, N. Y. (5); construction of seven new substations in electrified territory (80); Approximate cost of above projects, $1,412,400.

Reading

Important Work Undertaken: Reconstruction of bridge over Schuylkill river, Reading, Pa., $1,118,000 (100); construction of industrial track to serve the Pennsylvania Power & Light Co., plant, Clement, Pa., $980,000 (100); extension of enginehouse, including relocation of township road, additional tracks and other facilities, Rutherford, Pa., $392,000 (100); strengthening of bridge over Schuylkill river at West Falls, Philadelphia, Pa., $175,000 (90); construction of additional coach servicing facilities, Huntingdon St. Yard, Philadelphia, Pa. $175,000 (50); renewing train-shed roof, Reading Terminal, Philadelphia, Pa., $220,000 (75); strengthening six bridges, Port Reading branch, $220,000 (60); improving engine terminal facilities, Port Reading, N. J., $84,000 (25).

Richmond, Fredericksburg & Potomac

Third Track: From Mile post 98.1 to Mile post 103.7 (Virginia) 5.60 mi.

Important Work Undertaken: Construction of two-story addition to freight warehouse, Richmond, Va., $225,000 (10).

St. Louis-San Francisco

Grade Crossing Eliminations: Overcrossings: State highway 40, Forkland, Ala., $112,462 (100); U. S. Highway 160, Cherryvale, Kans., $80,000 (100); State highway 6, Wise Gap, Miss., $36,000 (100); State highway 15, New Albany, Miss., $33,000 (50).

Important Work Undertaken: Construction of two concrete piers and one abutment, and erection of 144-ft. through truss span replacing a light span on stone piers, Kellyville, Okla., $101,296 (100); construction of freighthouse and incidental service tracks, Birmingham, Ala., $236,866 (100); construction of Diesel locomotive shop, Lindenwood, Mo., $266,904 (85); construction of yard, including all incidental facilities, Springfield, Mo., $1,750,000 (30).

St. Louis Southwestern

Important Work Undertaken: Relocation of 2.88 mi. of main track across Richland creek to raise the track above high water. Corsicana, Tex., to Waco, $194,280 (100).

Seaboard Air Line

Grade Crossing Eliminations: Overcrossings: Near Butterworth, Va., cost unknown (10); Aberdeen, N. C., cost unknown (100); Madison, Fla., cost unknown (100); Atlanta, Ga., cost unknown (60).

Important Work Undertaken: Construction of two-story concrete and brick building for housing C. T. C. equipment and offices for signal supervision on the first floor, and dispatchers' offices and C. T. C. machines on the second floor, Savannah, Ga., $150,000 (100); reconstruction of bridge near Camden, S. C., $245,000 (10); construction of concrete trestle near Jamestown, S. C., $200,574 (40); installation of automatic signals, including necessary track changes, Hamlet, N. C., to Savannah, Ga., $2,700,000 (100); installation of automatic signals, including incidental track changes, Coleman, Fla., to Tampa, $864,000 (5); installation of automatic signals, including incidental track changes, Coleman, Fla., to Miami, $2,744,000 (5); installation of C. T. C., including necessary track changes, Hawthorne, Fla., to Wildwood, $608,000 (100); installation of C. T. C., including necessary track changes, Cary, N. C., to Moncure, $132,000 (100).

Southern

Grade Crossing Eliminations: Overcrossings: Eutaw, Ala., with federal funds, cost unknown (100); near Phelps, Ga., with federal funds, cost unknown (100); Kingston Pike, Bearden, Tenn., with federal funds, cost unknown (90); Fletcher, N. C., with federal funds, $36,400 (10); Danville, Ky., unknown cost borne by city, county, state, railroad and federal government (10); Bealeton, Va., with federal funds, $50,000 (25); Springfield, Va., with federal funds, $85,000 (35); Bealeton, Va., with federal funds, $50,000 (100); Perry St., High Point, N. C., with city funds, $88,000 (100); Guthrie, N. C., with federal funds, cost unknown (25); Sulphur Springs, N. C., with federal funds, cost unknown (10); Hamilton St., High Point, N. C., with city funds, cost unknown (100); Ayresville, Ga., with federal funds cost unknown (25); Mead, Ga., railroad and county funds, $21,300 (100); near Greenville, S. C., with federal funds, cost unknown (100); Lake Junaluska, N. C., with federal funds, cost unknown (100); Innis St., Salisbury, N. C., with federal funds, cost unknown (90); Elm St., Statesville, N. C., with railroad funds, $25,000 (90). Subways: Conover, N. C., with federal funds, cost unknown (15); Orangeburg, S. C., with federal funds, cost unknown (5); Broad St., Toccoa, Ga., with federal funds, $223,000 (90); Doraville, Ga., with federal funds, $300,000 (10); Gentilly Blvd., New Orleans, La., with federal funds, $470,000 (25); Main St., Clinton, Tenn., with railway and state funds, cost unknown (10); widen existing overcrossing north of Constitution, Ga., with federal funds, cost unknown (100).

Important Work Undertaken: Construction of concrete arch culvert and embankment fill, replacing timber trestle, Cook Springs, Ala., $120,100 (100); construction of double concrete-arch culvert and embankment fill to replace timber trestle, Shelbyville, Ky., $155,800 (95); construction of concrete-pipe culvert and embankment fill to replace timber trestle, Parrish, Ala., $125,500 (100); making embankment fill to replace portion of approach trestle to the Tombigbee river bridge, Jackson, Ala., $130,500 (100); replacing deck-truss bridge and trestle approach with deck-plate-girder bridge on new alinement and grade, Heiskell, Tenn., $132,100 (100); replacing through-truss bridge with deck-plate-girder bridge on new masonry, Bristow, Va., $186,000 (100); replacing steel viaduct with deck-plate-girder bridge on new masonry, Pelion, S. C., $110,000 (30); construction of interchange tracks, joint with Louisville & Nashville, Knoxville, Tenn., $109,825 (100); construction of machine shop for making repairs to Diesel locomotives, Chattanooga, Tenn., $890,537 (60); construction of passenger station and train shed, Sheffield, Ala., $176,000 (80).

Southern Pacific

Grade Crossing Eliminations: Overcrossings: Fifth Ave., Oakland, Cal., with state and federal funds, $1,761,000 (90); Auburn, Cal., with state and federal funds, $89,000 (100); Anaheim St., Wilmington, Cal., with state and federal funds, $849,000 (100); Nicholson St., Wilmington, Cal., with state and federal funds, $264,000 (100); 19th Ave., Oakland, Cal., with state and federal funds, $354,000 (10); Fruitvale Ave., Oakland, Cal., with state and federal funds, $971,000 (50); South San Francisco, Cal., with state and federal funds, $994,000 (40); Santa Barbara, Cal., with state and federal funds, $759,000 (75); Spreckles Junction, Cal., with state and federal funds, $183,000 (5); Woodford, Cal., with state and federal funds, $148,000 (50); Monterey St., Fresno, Cal., with state and federal funds, $825,000 (5); Oil Junction, Cal., with state and federal funds, $232,000 (60); Ravenna, Cal., with state and federal funds, $205,000 (50); Kaiser, Cal., with state and railroad funds, $200,000 (75); Clifton, Ariz., with state and federal funds, $10,000 (100); Tehachapi, Cal., with state and federal funds, $208,001 (50).

Subways: Yuba City, Cal., with state and railroad funds, $85,000 (100); Sacramento, Cal., with state and federal funds, $300,000 (100); Bailey Hill, Cal., with state and federal funds, $269,000 (40); North Aptos, Cal., with state and federal funds, $184,000 (5); South Aptos, Cal., with state and federal funds, $170,000 (5); Auburn, Cal., with state and federal funds, $102,000 (80); widen overcrossing, Shoshone, Nev., with state and federal funds, $7,000 (100).

Important Work Undertaken: Construction of 30,000 ft. of track, yard offices and other facilities to serve General Motors' new assembly plant between Raymer, Cal., and Hewitt, $383,000 (80); construction of 6,000 ft. of track, reconstruction of corrals and other facilities, and construction of food processing plant, Haywards, Cal., $100,000 (20); construction of 13,700 ft. of track in connection with industrial development, Redwood City, Cal., $121,000 (20); construction of 24,600 ft. of additional yard tracks, Aurant, Cal., $155,000 (100); shifting track away from toe of bluff and rebuilding 258 ft. of three-track snowshed and 282 ft. of turnout shed, Crystal Lake, Cal., $101,000 (100); renew 576 ft. of snow shed over 2 tracks and turntable leads, Norden, Cal., $100,000 (100); replacing signals to conform to existing regulations, $650,000 (100); renewal of bridge designed for heavier loading, Herndon, Cal., $249,000 (5); enlargement of 500 ft. of tunnel No. 6, including installation of concrete sills and heading to carry off exhaust fumes, Cuesta-Thyle, Cal., $152,000 (70); replacement of 32,106 ft. of 14-in. wood pipe with cast iron pipe, Tecolote Gallinas, New Mex., $176,000 (5); installation of mechanical car washer and rearrangement of coach tracks, West Oakland, Cal., $106,000 (25); installation of three service tracks and incidental service facilities for Diesel locomotives, Taylor, Cal., $296,000 (100); installation of two Diesel locomotive inspection pits and 3 service platforms, Taylor, Cal., $193,000 (10).

Spokane, Portland & Seattle

Important Work Undertaken: Installation of 38,590 lin. ft. of detector fense, Wishram, Wash., to Pasco, $130,453 (100); replace trestle, 120-ft. high, with concrete box culvert, including revision of alinement, Rockton, Ore., $337,984 (100); fill seven panels of trestle, 90 ft. high, and 1,288 ft. long, and renew the remainder using creosote piling and timber, Bowers Junction, Ore., $100,969 (100); fill 7,128 lin. ft. of pile trestle, 22 ft. high, leaving four openings for tide equalization, Astoria, Ore., $468,939 (100); reline portion of each end of Cornelius tunnel, $129,500 (50).

Stockton Terminal & Eastern

New Lines Under Survey: Stockton, Cal., industrial track, 0.50 mi.

Strouds Creek & Muddlety

First Track: At Muddlety, W. Va., 1.00 mi.

Terminal Railway, Alabama State Docks

Important Work Undertaken: Construction of about 5 mi. of miscellaneous service tracks, and a classification yard, Mobile, Ala., $250,000 (15).

Texas & New Orleans

Grade Crossing Eliminations: Overcrossings: Uvalde, Tex., constructed by state with federal and state funds, $128,000 (100);

Austin, Tex., constructed by state with federal and state funds, $273,000 (100); Dunlay, Tex., constructed by state with federal and state funds, $284,000 (100); Sanderson, Tex., constructed by state with federal and state funds, $358,000 (100). Subways: Pecan street, Ft. Worth, $250,000 (40). Revision of Highway: Austin, Tex., extension of East Seventh Street.

Texas & Pacific

Important Work Undertaken: Construction of reinforced concrete and steel pool car dock, Fort Worth, Tex., $93,000 (100); revision of alinement, Longview, Tex., $135,000 (75); revision of alinement and grade, Lodi, Tex., $115,000 (100); revision of alinement, St. James, La., $145,000 (100).

Texas City Terminal

Important Work Undertaken: Construction of four oil-loading docks, Texas City, Texas, $245,000 (85).

Texas-Mexican

Important Work Undertaken: Construction of warehouse with 500-ft. covered platform, Laredo, Tex., $150,000 (100).

Union Pacific

Grade Crossing Eliminations: Overcrossings: Sixth St., Junction City, Kans., constructed by state and Federal Government, $250,000 (100); Park, Wash., constructed by state, $19,500 (100); Tonganoxie, Kans., constructed by state and federal government, $45,000 (100); elimination of grade crossings on Terminal Island Freeway serving Los Angeles, Cal., and Long Beach harbor, including Hobson Ave., $1,936,000, Nicholson Ave, $350,000, at Mead Yard, $997,600, at Cerritos Yard, $691,900—all on the San Pedro branch, constructed with federal, state and U. S. Navy funds. Subways: Milton, Ore., constructed by state and federal government, $100,600 (100); Los Angeles, Cal., Santa Ana Freeway connections to Aliso St. viaduct, constructed by city, state and federal government, with three railroads participating in cost, $300,000 (100).

Important Work Undertaken: Construction of necessary facilities for servicing Diesel locomotives, including the extension and rearrangement of tracks, Los Angeles, Cal., $136,070 (100); installation of 100 mi. of C. T. C., including necessary track changes, Huntington, Ore., to LaGrande, $1,300,555 (100); drilling of new well, installation of electric pump and replacement of Diesel-engine generators with two steam-turbine generators, Kelso, Cal., $143,960 (100); construction of one-story warehouse, Portland, Ore., $166,304 (100); construction of warehouse, including grading, paving, platforms and tracks, Albina (Portland), Ore., $122,992 (35); replacement of timber lining and portals with reinforced concrete, inside of timber lining, Olympia branch tunnel No. 26, $210,400 (70); acquisition of property and construction of modern retarder yard, including communication facilities and the building of three mi. of double-track main line, Pocatello, Idaho, $2,618,985 (100); construction of two ski lifts and a new ski course, Sun Valley, Ida., $225,000 (60); replacement of 22-span frame trestle, 97 ft. high, with 10 ft. by 340 ft. multiplate, corrugated pipe culvert and filling material, Moody, Ida., $110,000 (100); rearrangement of interchange tracks with the Salt Lake, Garfield & Western, including the construction of an interlocking plant, joint with the Western Pacific, Salt Lake City, Utah, $137,067 (50).

Construction of fireproof building, including the installation of equipment for C. T. C. operation between Salt Lake City, Utah and Milford, $130,836 (40); installation of 329 mi. of C. T. C., including necessary track changes, Caliente, Nev., to Salt Lake City, Utah, $4,865,011 (25); alteration of signal system to absolute block, Sharon Springs, Kans., to Denver, Colo., $289,369 (40); construction of warehouse building, including pavement and installation of storm sewer, Denver, Colo., $192,850 (100); construction of one-story warehouse, including two open platforms and paving, Denver, Colo., $474,750 (100); replacement of pile piers and pile trestle approach spans with concrete piers and concrete abutments for bridge No. 132.53, Hardin, Colo., $110,424 (65); replacement of boiler-washing system and boiler house, Kansas City, Kans., $100,000 (100); revision of alinement of double-track main line and one side track including the rearrangement of signals, telegraph line and fences, Ft. Steele, Wyo., $153,615 (100); acquisition of right of way and construction of 4.62 mi. of westbound track, including a 5,000-ft. passing siding and reinforced-concrete tunnel, 6,700 ft. long, installation of crossovers and rearrangement of interlocking plants, Aspen, Wyo., to Altamont, $7,713,340 (25); construction of one-story produce warehouse and installation of spur track, Omaha, Neb., $221,200 (100); renewal of abutments of double-track bridge, including shifting the bridge and raising track 3 ft., Elkhorn, Neb., $120,375 (100).

Union

First Track: East Pittsburgh, Pa., to Bessemer, 0.02 mi.
Second Track: East Pittsburgh, Pa., to Bessemer, 0.28 mi.

Union Terminal Company

Important Work Undertaken: Modernization of passenger station, including installation of ramps and tunnels to train platforms and escalators between first and second floors, Dallas, Tex., $1,023,000 (10).

Virginian

First Track: Whitby, W. Va., to Burma, 2.75 mi.
Grade Crossing Eliminations: Overcrossings: Kumis, Va., constructed by Commonwealth of Va., $367,834 (20); Salem, Va., constructed by Commonwealth of Va., $558,936 (started).
Important Work Undertaken: Improvement to and rehabilitation of power plant, Narrows, Va., $4,735,341 (15); installation of two drop tables and replacement of drop pits, Victoria, Va., $52,000 (99); construction of additions to enginehouse, Victoria, Va., $130,000 (90); improvement to water-supply facilities, Princeton, W. Va., $55,000 (started); construction of extension to crane runway, Princeton, W. Va., $53,000 (started); construction of extension to power house, including additional electrical equipment, Princeton, W. Va., $123,000 (35).

Western Maryland

Second Track: Culbertson, Pa., to Plainsfield, 1.18 mi.
Important Work Undertaken: Construction of concrete fender at coal pier, Port Covington (Baltimore), Md., $158,000 (100).

Western Pacific

Important Work Undertaken: Construction of enginehouse, shop and other facilities for servicing Diesel locomotives, Oakland, Cal., $750,000 (98); widen embankments and renew 7.92 mi. of ballast, $110,000 (100); replace 37.21 mi. of 85-lb. rail with 115-lb., $770,000 (100); widen embankments and reballast 10 mi. of main track, $137,000 (100).

Wheeling & Lake Erie

Important Work Undertaken: Construction of engine and yard terminal facilities, including a seven-stall enginehouse, a coaling and sanding plant, terminal tracks, water-treating plant, 105-ft. turntable, cinder-handling plant and two water lines, Cleveland, Ohio, $863,000 (100); reconstruction of bridge, Mingo Junction, Ohio, $104,551 (10).

CANADA

Canadian National

First Track: Barraute, Que., to Deschampneuf, 12.00 mi.; connection to North Alberta railway at Morinville, Alberta, 0.19 mi.
New Road Under Construction: Deschampneuf, Que., to Kiask Falls, 27.02 mi.
Grade Crossing Eliminations: Overcrossings: John C. Lodge Expressway, Detroit, Mich. (started). Revision of highway: Rossburn, S. D., construct road diversion (50); Turtleford, S. D., construct road diversion (90). Reconstruction of existing grade crossing structures: King St. subway, Toronto, Ont. (50).
Important Work Undertaken: Restoration of piers, Grand Narrows bridge, Sydney, S. D., N. S. (to be completed in 1948); strengthening steel bridges, various locations on Cascapedia and Chandler subdivisions, N. B. (to be completed in 1948); install boilers in power house, Moncton, N. B. (to be completed in 1948); improve terminal facilities, Garneau, Que. (100); construction of ash-handling facilities, Turcot, Que. (to be completed in 1948); strengthen steel superstructure, Victoria Bridge, Montreal, Que. (to be completed in 1948); rearrangement of yard, Mimico, Ont. (to be completed in 1948); construction of annex to erecting shop, including incidental track changes, Stratford, Ont. (to be completed in 1948); construction of steam plant to serve Central station area, Montreal, Que. (to be completed in 1948); construction of signal repair shop, Point St. Charles, Que. (100); repair and strengthen steel superstructure of International bridge, Cayuga, S. D., Ont. (to be completed in 1948); construction of new branch line, Barraute, Que., to Kiask Falls (to be completed in 1949); construction of central heating plant, Winnipeg, Man. (to be completed in 1948); make alterations to office building, Vancouver, B.C. (to be completed in 1948); construction of new wing together with alterations to station, Edmonton, Alta. (to be completed in 1948); rearrangement of tracks in Nichols Yard, Battle Creek, Mich. (to be completed in 1948); construction of new station and track layout, Grand Rapids, Mich. (to be completed in 1948); reconstruction of pole line, Oshawa, Ont., to Toronto (100); installation of train dispatching facilities, Cochrane division (to be completed in 1948); reconstruction of pole line, Riviere du Loup, Que., to Anne de la Pocatiere (to be completed in 1948); reconstruction of pole line, Montreal, Que., to Vaudreuil (to be completed in 1948); reconstruction of pole line, Atikokan, Que., to Fort Frances (to be completed in 1948); installation of two generating units in shops, Stratford, Ont. (to be completed in 1948).
(Grand Trunk Western) *Second Track:* At Pontiac, Mich., 1.17 mi.

Canadian Pacific

First Track: Halifax, S. D., Nova Scotia, 0.90 mi.
New Road Under Construction: Mile post 19, North Bay, S. D., to mile post 31.97, 12.9, mi.
New Lines Under Survey: Mile post 51, North Bay, S. D., to mile post 62, 11.00 mi.
Grade Crossing Eliminations: Subway: Clifton road extension, Toronto, Ont., constructed by railway, $250,000 (85).
Important Work Undertaken: Construction of car department and stores building, Glen yard, Montreal, Que., $240,000 (95); construction of a unit hump yard, Montreal, Que., $6,000,000 (5); replacement of boiler plant with a modern unit, Field, B. C. (started); construction of steamship and motor vehicle terminal, Nanaimo, B. C. (started); reconstruction and enlargement of pier and freight shed destroyed by fire, Port Alberni, B. C. (started).

Dominion Atlantic

First Track: In Province of Nova Scotia, 0.90 mi.

Toronto, Hamilton & Buffalo

Important Work Undertaken: Remodel enginehouse to accommodate Diesel locomotives, Hamilton, Ont. (100).

MEXICO

National Railways of Mexico

Grade Crossing Elimination: Overcrossing: San Luis Potosi, $100,000 (20).
Important Work Undertaken: Widening of narrow-gage interoceanic railway to standard gage, Veracruz to Mexico City, $6,000,000 (100); construction of new yard and enginehouse, Escobedo, $310,000 (30); revision of grade and alinement to prevent flood damage, Las Arenas, $70,000 (80).

Power machines were used effectively during the year in taking up abandoned lines. In this view a fork-lift overhead loader salvages crossties and piles them on a truck

MORE MILES OF LINES ABANDONED IN 1947

Mileage of unproductive roads discontinued or replaced by shorter routes increased 50 per cent over the previous year

By **HENRY E. MICHAEL**
Associate Editor

Paced by the sale and subsequent scrapping of the Pittsburg, Shawmut & Northern—a former Class I railroad—the railways of the United States abandoned 670 mi. of line in 1947, which is more than in any year since 1943. In Canada, a negligible 13 mi. were abandoned, while in Mexico no lines were discontinued.

Although the total miles abandoned in the United States in 1947 is considerably less than the record high of 2,516 mi. in 1942, or the 1,096 mi. in 1943, nevertheless it was an increase of 58 per cent above the 423 mi. discontinued in 1946.

In spite of the considerable construction activity in 1947 in some sections of the country, the total of 154 miles of first, second, and third tracks that was built was short of equalling the amount abandoned—by 516 mi. This continued a trend of long standing.

Among the largest individual abandonments in 1947, first place went to the Pittsburg, Shawmut & Northern with its 172.56 mi. of track abandoned, including all branches and its wholly-owned subsidiary, the Kersey. Second place fell to the Florida East Coast for its discontinuance of that part of its Okeechobee branch extending from Maytown to Mantola, a total of 136.58 mi. These two outstanding abandonments present an interesting study in contrasts. The first dissolved the oldest railroad receivership, which had been in effect since 1905, and ended an almost continual fight against declining coal and other traffic and rising expenses. The second is typical of the present pattern being fol-

lowed by management to "trim the waist lines" of their properties to effect economies in maintenance and operation. In this case, very little traffic had been produced recently on the segment abandoned, but a great part of the traffic to and from the Lake Okeechobee area, expected to amount in revenue to more than $2,500,000 by 1949, had to move over this segment to reach the main line. However, by building a cut-off slightly more than 29 mi. long, over which this traffic could reach the main line, a capital saving, as compared with rehabilitating the branch, of about $900,000 could be effected, and net profits correspondingly increased.

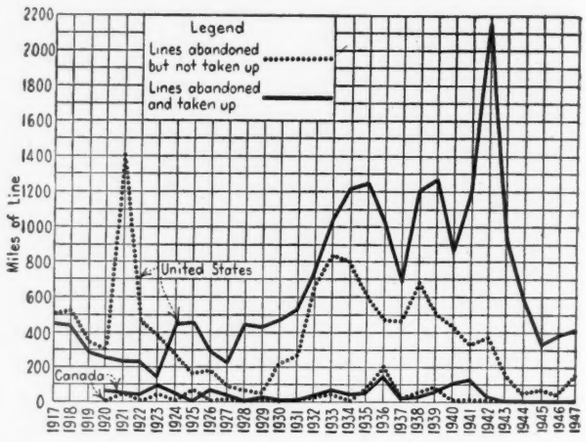
The third largest abandonment was that of the narrow-gage branch of the Sumpter Valley, extending 57 mi. from South Baker, Ore., to Bates. In this case, motor carrier service is being operated over routes formerly served by the rail line. In the fourth place, with respect to mileage involved, was the branch line of the Southern Pacific and its lessor, the El Paso & Southwestern, extending 31.56 mi. from Alamogordo Junction, N. M., to Russia.

Two entire railways were abandoned in 1947. The largest of these was the Pittsburg, Shawmut & Northern, previously mentioned. The other was the Wood River Branch, 5.70 mi. long, extending from Hope Valley, R. I., to Wood River Junction. Passenger service had been discontinued in 1937, and it is said that only two carloads of freight moved over the line in April, 1947. Adequate service is provided by other carriers operating in the area, according to the Interstate Commerce Commission. These results compare with three entire roads abandoned in 1946, four in 1945, eight in 1944, and three in 1943. Fourteen roads were discontinued in 1942, and 14 in 1941. Thus, with the 13 roads that were abandoned in 1940 and the 17 in 1939, a total of 78 have passed out of existence in the nine-year period just ending. In addition, several other roads have petitioned the I. C. C. for authority to abandon their entire lines.

These statistics include, each year, all lines abandoned permanently during the year, regardless of whether the tracks are removed or not. Should the tracks not be taken up during the year, they are not included in later reports when they are actually removed.

Railroads increased their program of winning friends among the youth during the year. Inspection trips, inexpensive tours, and other programs, such as this group of cub scouts inspecting Grand Trunk Western property, were common

Since records of abandonments were started in 1917, mileages have ranged each year from the low of 282 mi. in 1927 to the high of 2,516 mi. in 1942. Between 1917 and 1947, inclusive, a total of 32,477 mi. of track have been abandoned. During this same 31-year period, only 11,138 mi. of new lines have been constructed, resulting in a net decrease of 21,339 in the total mileage of the railways of the country. This is an average net reduction of about 688 mi. per year.



Lines abandoned in the United States and Canada—1917 to 1947, inclusive

States	Mileage abandoned in 1947	Accumulated abandonments since 1931 (miles)
Alaska	.....	216.47
Alabama	.....	291.62
Arizona	.....	205.89
Arkansas	.....	463.67
California	1.22	1,123.00
Colorado	38.17	742.33
Connecticut	.....	129.75
Delaware	.....	37.11
Florida	136.58	776.18
Georgia	1.03	517.58
Idaho	10.24	233.18
Illinois	26.77	703.48
Indiana	.....	185.70
Iowa	28.10	1,029.36
Kansas	3.25	857.73
Kentucky	.....	394.81
Louisiana	22.57	446.28
Maine	.....	211.79
Maryland	.....	96.70
Massachusetts	0.81	285.80
Michigan	.....	1,156.32
Minnesota	1.67	417.80
Mississippi	.....	299.59
Missouri	.....	1,104.13
Montana	.....	151.00
Nebraska	.....	381.72
Nevada	.....	307.29
New Hampshire	.....	229.19
New Jersey	4.04	235.25
New Mexico	31.56	333.69
New York	78.35	689.93
North Carolina	.....	357.26
North Dakota	25.64	49.52
Ohio	.....	288.23
Oklahoma	.....	717.98
Oregon	57.00	337.20
Pennsylvania	120.99	1,071.52
Rhode Island	5.70	23.09
South Carolina	.....	341.15
South Dakota	.....	236.14
Tennessee	0.39	481.00
Texas	7.78	1,431.34
Utah	32.01	366.68
Vermont	.....	73.41
Virginia	4.41	441.89
Washington	5.23	359.17
West Virginia	0.91	317.60
Wisconsin	25.31	797.44
Wyoming	.....	128.02
Total	669.73	22,072.98

Florida had the largest total miles of line abandoned in 1947, by virtue of the discontinuance of service on the 136.58 mi. of the Florida East Coast's Okeechobee branch. Pennsylvania, with 120.99 mi. abandoned was in second place; and New York was in third place with 78.35 mi. Both of these latter states attained their rank because of their respective share of the abandonment of the Pittsburg, Shawmut & Northern. Oregon was in fourth place with 57 mi. abandoned. The four states having the largest total abandonments during the 16-year period ending with 1947 continued to hold the same relative rank as they did in 1945 and 1946. Texas led with 1,431.34 mi.; Michigan was second with 1,156.32, although it did not have a single abandonment during the year; California was third with 1,123.00 mi.; and Missouri retained fourth place with 1,104.13 mi., while having no rail lines discontinued.

The abandonments in the various regions of the United States, both during the past year and accumulated totals for the period between 1932 and 1947, inclusive, are shown in an accompanying table.

Canadian abandonments have varied since 1932 between 11 and 399 mi. per year, except for 1943, when less than one mile was discontinued, and in 1945 when no lines were abandoned. The 13 mi. abandoned in 1947 increased the total since 1932 to 1,218 mi.

	Mileage abandoned in 1947	Accumulated abandonments since 1931 (miles)
New England states	6.51	953.03
North Atlantic states	203.38	2,130.51
Southeastern states	143.32	4,218.68
Middle Western states	85.10	5,817.78
Northwestern states	74.05	1,540.19
Southwestern states	61.91	5,010.27
Rocky Mountain — Pacific Coast states	95.46	2,186.05
Alaska	.....	216.47
Total	669.73	22,072.98

Miles of Lines Abandoned in the United States Since 1916

Year	Miles	Year	Miles
1917	942	1932	1,452
1918	959	1933	1,876
1919	637	1934	1,995
1920	536	1935	1,843
1921	1,626	1936	1,523
1922	672	1937	1,140
1923	513	1938	1,897
1924	693	1939	1,783
1925	606	1940	1,299
1926	457	1941	1,509
1927	282	1942	2,316
1928	512	1943	1,096
1929	475	1944	640
1930	694	1945	412
1931	795	1946	423
		1947	670

Lines Abandoned in the United States, Canada and Mexico in 1947

	Lines abandoned and taken up (miles)	Lines abandoned but not yet taken up (miles)
United States		
Atchison, Topeka & Santa Fe		
Cottonwood Falls, Kans., to Gladstone		3.25
Portland, Colo., to Canon City		10.36
Boston & Maine		
River Bank (Montague), Mass., to Turners Falls		0.81
Central of New Jersey		
At Eatontown, N. J.	1.00	
Rockaway, N. J., to Hibernia	3.00	
Chesapeake & Ohio (Chesapeake District)		
Sharples, W. Va., to end of track	0.89	
Chicago & North Western		
Parrish Junction, Wis., to Harrison	6.18	
Chicago, Milwaukee, St. Paul & Pacific		
Aurora, Ill., to De Kalb	24.96	
Chicago, Rock Island & Pacific		
Floris, Iowa, to Paris	15.00	
Washington, Iowa, to Brighton	13.10	
Colorado & Southeastern		
Chandler Branch, Chandler Junction, Colo.	0.72	
Denver & Rio Grande Western		
LeGrande, Utah, to Park City	24.10	
Crested Butte, Colo., to Anthracite		4.07
Duluth, Missabe & Iron Range		
Portion of Eve Lake Spur, Minn.	1.11	
Portion of main line, Allen Junction, Minn., to Virginia	0.56	
East Broad Top		
Shade Gap branch, Blacklog, Pa., to Shade Gap	4.60	
Erie		
West of Blossburg, Pa., to end of branch at Hoytville	13.20	
Florida East Coast		
Maytown, Fla., to Mantola		136.58
Great Western		
South of Milliken, Colo., to end of Wattenburg branch		23.02
Green Bay & Western		
Scandinavia, Wis., to Waupaca	9.73	
Illinois Terminal		
Danville, Ill., to Tilton	1.81	
Lehigh Valley		
End of Sheppton branch at Oneida, Pa.	0.14	
Part of National Docks branch at Constable Junction, N. J.	0.04	
Marinette, Tomahawk & Western		
Harrison, Wis., to Kings	9.40	
Missouri Pacific (Gulf Coast Lines)		
Brundage, Tex., to Bermuda	4.79	
Nashville, Chattanooga & St. Louis		
Memphis, Tenn., to Atlanta, Ga., various locations	1.42	
Nelson & Albemarle		
Schuyler, Va., to Rockfish		4.00
Norfolk & Western		
Buffalo Forge, Va., line change	0.06	
At end of Coal Creek branch, W. Va.	0.02	
Portion of Crane Creek branch, Va.	0.35	
Northern Pacific		
New Salem, N. D., to Kurtz (via Almont)		25.64
Pennsylvania		
Frackville, Pa., to Shenandoah		4.70
Girardville, Pa., to Junction of Shenandoah and Girardville branches		0.79
Pittsburgh & West Virginia		
At Pittsburgh, Pa.	1.12	
Pittsburg, Shawmut & Northern		
Entire Line:		
Main Track		
Wayland Junction, N. Y., to state line	69.35	
State Line, Pa., to Hydes	75.15	
Branches:		
Prosser, N. Y., to Olean	9.00	
Kasson, Pa., to Hazelhurst	1.38	
Horton City, Pa., to Drummond	0.88	
(Kersey) Paine, Pa., to Cardiff	12.18	
Force, Pa., to Tyler	2.87	
Weedville, Pa., to Browns Run	1.75	
Southern Pacific		
Inspiration Junction, Cal., to Live Oak	1.22	
Alamogordo Junction, New Mex., to Russia	31.56	
Sumpter Valley		
Bates, Ore., to Whitney	17.00	
Whitney, Ore., to South Baker		40.00
Texas & New Orleans		
Dallas, Tex.	1.04	
Dallas, Tex.		0.08
Dallas, Tex.		1.87
Texas & Pacific		
Church Point, La., to Crowley	19.37	
Tremont & Gulf		
Grandstaff, La., to Waggoner	3.20	
Union Pacific		
Alto, Wash., to Relief	5.23	
Warrens, Ida., to Murphy	10.24	
College Junction, Utah, to College	2.98	
Bakers, Utah, to Urban	4.93	
Western Maryland		
Gray, Pa., to Berkey Mine	2.23	
Wood River Branch		
Entire line, Hope Valley, R. I., to Wood River Junction	5.70	
Total (United States)	414.56	255.17
Canada		
Canadian National		
Trelle Junction, Alberta to Morinville		12.21
(Niagara, St. Catharines & Toronto)		
Lundy's Lane, Ont., to Winery road	0.91	
Total (Canada)	0.91	12.21

A REVIEW OF RAILWAY OPERATIONS IN 1947

(*Continued from page 195*)

roads were in the hands of trustees. The principal changes during the year were the emergence from court jurisdiction of the Denver & Rio Grande Western; New York, New Haven & Hartford; St. Louis-San Francisco; and St. Louis Southwestern.

Capital Expenditures and Purchases

Table XI shows gross expenditures for additions and betterments to railway property, and purchases of fuel, materials and supplies, for the ten years 1938 to 1947, inclusive.

Table XI—Capital Expenditures and Purchases

Year	Gross capital expenditures (thousands)	Purchases of fuel, materials and supplies (thousands)
1947	$900,000	$2,025,000
1946	561,957	1,570,555
1945	562,980	1,572,404
1944	560,112	1,610,529
1943	454,282	1,394,281
1942	534,897	1,259,811
1941	543,021	1,161,274
1940	429,147	854,463
1939	262,029	769,314
1938	226,937	583,282
Total, 10 years	$5.035,362	$12,800,913

Capital expenditures and purchases were affected by rising price levels in 1947, in addition to which the physical volume of items purchased or installed was increased.

Capital expenditures in 1947 are estimated at $900 million, a considerable increase compared with $562 million in 1946. The increase was accounted for, largely, by the greater number of freight car installations. About 72 per cent of the 1947 expenditure was for equipment and 28 per cent for roadway and structures.

Purchases of fuel, material and supplies in 1947 are estimated at approximately $2,025 million, an increase of 29 per cent over the 1946 total of $1,571 million. This marks the first year in which railroad purchases of supplies for current use and consumption have exceeded the two-billion dollar level.

Railway Equipment

In ability to obtain needed new equipment promptly has plagued the railroad industry for a number of years. While some improvement in deliveries has taken place since the end of the war, there is need for greater improvement to meet current demands.

Table XII shows railroad ownership of equipment for 1947 and the preceding six years. Installations of new equipment and the number of new units on order are also shown.

Ownership of railroad equipment decreased during 1947, as retirements exceeded new installations. Steam locomotive ownership continued its decline, ownership of electric and Diesel locomotives continued the upward trend of recent years, but total ownership showed a net decrease. The number of steam locomotives owned on December 1, 1947, was 2,243 less than on December 31, 1946, while the number of

Table XII—Equipment Ownership and Installation

	Ownership at end of year	Installed during year	On order at end of year
Steam Locomotives:			
1947 (Dec. 1)	35,012	*69	33
1946	37,255	83	64
1945	38,683	109	92
1944	39,451	329	66
1943	39,501	429	339
1942	39,157	308	355
1941	39,358	161	258
Electric and Diesel Locomotives:			
1947 (Dec. 1)	4,881	*682	1,147
1946	4,222	480	540
1945	3,730	534	379
1944	3,233	609	402
1943	2,638	344	616
1942	2,307	404	533
1941	2,056	472	288
Freight-carrying Cars:			
1947 (Dec.1)	1,728,159	*54,306	110,822
1946	1,739,930	40,377	63,829
1945	1,759,662	39,987	37,160
1944	1,764,109	40,392	36,597
1943	1,750,279	28,708	35,737
1942	1,739,111	63,009	27,061
1941	1,693,978	80,502	74,897

* First 11 months.

electric and Diesel locomotives increased by 659. Diesel locomotives numbered 4,156 on December 1, 1947, of which 2,867, or 69.0 per cent, were assigned to switching service.

During the war, railroad ownership of freight cars reached its peak on August, 1945. Since that time, ownership has declined steadily. On December 1, 1947, the decrease amount to 44,583 cars, including a decrease during 1947 of 11,771 cars. This situation reflects both the difficulty in obtaining new cars during the postwar period and the hard usage of cars during the war, necessitating heavy retirements.

Installations of new freight cars during the first 11 months of 1947 totaled 54,306. The total for the year was about 62,500. This was a considerable improvement over recent years. At the end of November, 1947, there were 110,822 new cars on order, or 46,993 cars more than at the end of 1946. These were cars ordered by railroads; including private carline orders the total was 125,395. Prospects of filling these orders in a reasonable length of time are brighter than they have been for some time.

Freight car shortages persisted throughout 1947, reaching a maximum of 41,178 cars per day during the week ended October 18. The demand for box cars was again heavy, and the bulk of the shortages occurred in that type of car, although shortages took place also in coal and refrigerator cars. Locomotive supply was generally adequate, and stored serviceable units offered a margin of safety throughout the year. Unserviceable freight cars rose from 4.0 per cent at the beginning of the year to a high of 5.0 per cent on September 15. It then decreased to 4.4 per cent on December 1. Unserviceable locomotives decreased from a proportion of 8.6 per cent on February 1, 1947, to 7.5 per cent on December 1.

New passenger equipment of all types installed by the railroads during the first 11 months of 1947 totaled 804 units, of which 395 were coaches or coach combinations, 53 were sleepers, 74 were dining cars, and 45 were parlor, club, and lounge cars. The number on order at the end of November was 2,672 units. These statistics do not include orders or installations by the Pullman Company.

Revenue per ton-mile averaged 1.060 cent during the

first 9 months of 1947, and revenue per passenger-mile 2.060 cents. Table XIII shows the averages for 1929, and for each year from 1939 to 1947.

Table XIII—Revenue per Unit of Traffic

Year	Per ton-mile (cents)	Per passenger-mile (cents)
1947 (9 months)	1.060	2.060
1946	.978	1.947
1945	.959	1.871
1944	.949	1.874
1943	.933	1.882
1942	.932	1.916
1941	.935	1.753
1940	.945	1.754
1939	.973	1.839
1929	1.076	2.808

Average revenue per ton-mile in 1947 was about 9 per cent higher than in 1946, due largely to the freight rate increase that became effective on January 1. It crossed the one-cent line for the first time since 1932. Average revenue per passenger-mile also increased, to a point about 6 per cent above 1946, crossing the two-cent line for the first time since 1933. The several adjustments in passenger fares, already described, were largely responsible.

Both ton-mile and passenger-mile averages are below those of a considerable period of time following the first world war. From 1921 to 1930, for example, average revenue per ton-mile ranged from 1.063 cents to 1.275 cents, and average revenue per passenger-mile from 2.717 cents to 3.086 cents.

The next four tables compare significant performance averages for 1947 with those of the war period. Comparable figures for 1929 are also shown.

In considering performance averages for 1947, it should be kept in mind that traffic volume influences some of those averages. All things equal, performance will usually show to better advantage in periods of high rather than low traffic volume. The moderate upward trend in freight traffic in 1947 reflects that fact.

Combining both load and speed factors, the number of ton-miles per freight train hour is a most significant freight performance average. It shows the unit output per hour of freight train operation. The average is computed on two bases: (1) gross ton-miles of cars and contents per freight train hour, and (2) net ton-miles (lading only) per freight train hour. These averages are shown in Table XIV.

Table XIV—Ton-miles per freight Train-Hour

Year	Gross ton-miles	Net ton-miles
1947 (10 months)	38,519	18,163
1946	37,071	17,181
1945	36,954	17,482
1944	37,298	17,623
1943	35,970	16,997
1942	35,503	16,132
1941	34,684	14,930
1940	33,811	14,028
1939	32,808	13,450
1929	24,539	10,580

The long-term advance in efficiency of freight operation is manifest in these averages. New records were established in 1947 in each of the two categories.

Another set of significant operating factors is shown in Table XV, daily mileage of locomotives and freight cars. The heavy war traffic called for long hauls and caused sharp advances in the number of miles run daily by locomotives and cars. With disappearance of some of these favorable factors since the war, the averages have tended to recede. The heavier freight traffic and continued falling off of passenger traffic in 1947 is reflected in these figures.

Table XV—Daily Mileage of Locomotives and Cars

Year	Freight locomotives	Passenger locomotives	Freight cars
1947 (10 months)	119.8	218.5	48.8
1946	115.9	221.8	45.2
1945	118.4	226.9	49.3
1944	122.8	222.9	51.9
1943	124.5	220.9	51.0
1942	122.4	206.8	48.8
1941	116.4	195.6	43.7
1940	107.5	190.8	38.9
1939	104.0	184.2	36.4
1929	91.2	164.5	34.4

Freight locomotives for the first 10 months of 1947 averaged 3.4 per cent more miles than in the year 1946: passenger locomotives showed a decline of 1.5 per cent, while freight car mileage per car day increased by 8.0 per cent.

In addition to the declining length of haul in freight service, widespread adoption of the 5-day week by industry, leading in many cases to extra days of car idleness, have tended to cut down car utilization, increase turn-around time, and reduce performance averages based on the number of cars. Despite these obstacles, the railroads in October, 1947, reduced the average turn-around time for freight cars to a lower figure than ever before.

Average train speeds were the only performance averages that declined in the war period, owing to the great increase in number of trains operated, and to increased length and loading of trains, with resulting delay and congestion. These averages have since increased. The averages for freight and passenger trains for the first 10 months of 1947, 1946, and certain earlier years appear in Table XVI.

Table XVI—Average Train Speed (MPH)

Year	Freight trains	Passenger trains
1947 (10 months)	16.0	37.5
1946	16.0	36.7
1945	15.7	35.7
1944	15.7	35.8
1943	15.4	35.7
1942	15.8	36.9
1941	16.5	37.6
1940	16.7	37.3
1939	16.7	36.9
1929	13.2	....

Average freight train speed during the first 10 months of 1947 remained the same as it was in 1946. Passenger train speed increased 2.2 per cent.

Average loading per car and per train in freight service increased in 1947, while the corresponding averages continued to decline in passenger service. Table XVII shows the average load per car and per train in freight and passenger services.

Table XVII—Average Train and Car Loads

	Freight service		Passenger service	
Year	Net tons per train	Net tons per car	Passengers per train	Passengers per car
1947 (10 mos.)	1,148	32.6	*112.8	*21.5
1946	1,086	31.3	143.7	24.5
1945	1,129	32.2	190.5	30.2
1944	1,139	32.7	200.7	31.9
1943	1,116	33.3	189.5	31.1
1942	1,035	31.8	125.5	23.1
1941	915	28.5	73.2	15.8
1940	849	27.6	60.7	13.8
1939	813	26.9	58.0	13.4
1929	804	26.9	55.0	11.7

* Nine Months.

In freight service, the increases in average loads during the first 10 months of 1947 compared with the year 1946 were as follows: net tons per train, 62 tons, or 5.7 per cent; net tons per car, 1.3 tons, or 4.2 per cent. The average freight train load in 1947 was the greatest on

record, 1,148 tons, even surpassing the very heavy trainloads of the war period.

In passenger service, the decreases in 1947 were 30.9 passengers per train, or 21.5 per cent; 3.0 passengers per car, or 12.2 per cent.

Fewer persons were fatally injured in railroad accidents during the first 10 months of 1947 than in any corresponding period of record. The previous low in that respect was in 1939, when railroad traffic was far below current levels. In fact, the railroads in 1947 performed nearly twice as many ton-miles and passenger-miles of service as in 1939. Nonfatal injuries, on the other hand, while showing a considerable decline below wartime levels, were substantially greater during the first 10 months of 1947 than in the corresponding period of 1939.

Passenger fatalities in the first 10 months of 1947 numbered 60, a decline of 25 below the same months of 1946. Nonfatal injuries to passengers declined 7 per cent.

Employee fatalities increased by 39 in the first 10 months of 1947, but nonfatal injuries decreased by 2,005.

Association of American Railroads

Several changes in the organization of the Association of American Railroads were made during 1947. Following the death of President John J. Pelley in November 1946, R. V. Fletcher served as president until March 31, 1947, when William T. Faricy, vice-president and general counsel and a director of the Chicago & North Western, succeeded to the position. As of January 1, 1947, Clark Hungerford resigned as vice-president of the operations and maintenance department to become president of the reorganized St. Louis-San Francisco, and was suceeded by James H. Aydelott, general manager of the Chicago, Burlington & Quincy.

The association created two new vice-presidential positions, electing to them Julius H. Parmelee, director of the Bureau of Railway Economics, and Robert S. Henry, assistant to the president in charge of public relations. H. J. Forster retired as secretary-treasurer during the year, and was succeeded by George M. Campbell.

The Railroad Committee for the Study of Transportation, a research group organized by the Association of American Railroads in 1942 to survey postwar problems and prospects of the railroads, completed its assignment in 1947. Under the chairmanship of R. V. Fletcher, its final report, entitled "Transportation in America", took the form of a printed volume of 384 pages, comprising 22 chapters, with index. The report received widespread distribution and was generally commended for its scope, objective approach, and findings.

Working through 15 standing subcommittees, and several special groups with specific tasks, the committee produced a total of 160 reports on various phases of railway and other transportation. Most of the reports were mimeographed in small editions for circulation within the railway industry. A number of them were, however, printed in large editions for general circulation.

Total distribution of reports and other materials produced by the committee or based upon its work has aggregated more than one million copies. A number of sets of the various reports have been assembled and made permanently available for the use of students, by deposit in the libraries of large cities and educational institutions.

It is expected that the Association of American Railroads will continue that part of the work of the Railroad Committee for the Study of Transportation which lends itself to establishment on a current basis.

The Competitive Situation

Competing modes of transport made further gains in traffic volume in 1947, largely at the expense of the railroads. Motor trucks, busses and inland waterway carriers closely approached the percentages of total traffic handled by them just before the war. Scheduled air carriers have more than doubled their percentage in passenger service and have also made large gains in express and freight traffic, although still handling a small percentage of the total.

All modes of transport in 1947 felt the effects of rising costs of operation. Scheduled air carriers anticipate a substantial deficit in net income for the year, notwithstanding the subsidies they enjoy. Class I motor carriers of passengers experienced a sharp increase in their operating ratio in the first half of 1947, from 78.9 per cent to 89.9 per cent, due to reduced revenues and increased expenses. Inter-city Class I motor carriers of property, on the other hand, showed a slight improvement in their operating ratio in the same period, from 96.3 per cent to 94.3 per cent, revenues increasing to a greater relative extent than expenses.

The increasing volume of traffic being handled by competing agencies of transport, together with their dependence on government aid of one kind or another, emphasize the need for a clarified transportation policy.

What's Ahead in 1948?

Railroad traffic volume, and freight volume in particular, depends to a considerable degree upon general economic activity. Economic levels in 1948, therefore, will largely determine the extent of railroad operation.

Although price levels are still rising, neither the demand for goods and services nor the financial means with which to satisfy such demand seems as yet to have slackened. Production and employment remain well above peacetime peaks. Consumer buying continues at an unprecedented rate. Government spending may rise even above its present abnormally high level, if the extensive program for relief and rehabilitation of European and other countries materializes, and if government activities at home are not reduced. The building boom, though hampered in 1947 by sharp increases in construction costs, may assume even greater proportions in 1948.

Prospective continuaunce of large-scale employment supplies support for expecting a future volume of buying power as great as, and perhaps greater than, was present in the 1947 economic situation. It seems likely, too, that high farm income and purchasing capacity will continue at high levels. Although these developments are all part of the vicious circle of inflation from which the nation is now suffering, and which some day must undergo readjustment, immediate prospects are

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that such an adjustment may be deferred for several months, perhaps to 1949 or even later.

Should this prospect be fulfilled, railroad freight traffic in 1948 will be close to that of 1947, although passenger traffic will show a considerable decline. The railroads have made estimates regarding their traffic volumes in 1948, which were submitted to the commission in December in the Ex Parte No. 166 hearings. Those estimates forecast a decrease of 2.7 per cent in revenue ton-miles, 1948 under 1947, and a decreaese of 12.8 per cent in passenger-miles. If these estimates are borne out in actual experience, freight traffic in 1948 will exceed that of 1946, and will be nearly twice as great as in 1939. Passenger traffic, however, will be below that of every year from 1942 to 1947, although more than 70 per cent greater than in 1939.

While the prospect of heavy railroad traffic in 1948 is thus favorable, the probability that the railroads will be able to realize adequate net earnings from their operations is not so encouraging. Costs of rail operations have increased at a much greater rate than the amount received by the carriers for services rendered. Not only has a wide disparity between these two items developed, but the time lag between the impact of higher costs and the granting of increased rates and fares by governmental authority to meet those costs has added to the financial obstacles to be hurdled by the industry.

Although a measure of relief was granted in October, and further relief should be forthcoming, it is not yet certain whether the gap between higher operating costs and railroad income in 1948 will be completely closed. This constitutes the one big financial problem of the coming year. If the industry is to continue to render the high type of service which it provided during and after the war, it should be enabled to earn sufficient to pay its higher operating costs, meet interest charges, make an adequate return to equity investors, and have a margin with which to replace and improve its plant to a high state of modernization. A return of 6 per cent on net property investment would go far toward meeting that goal.

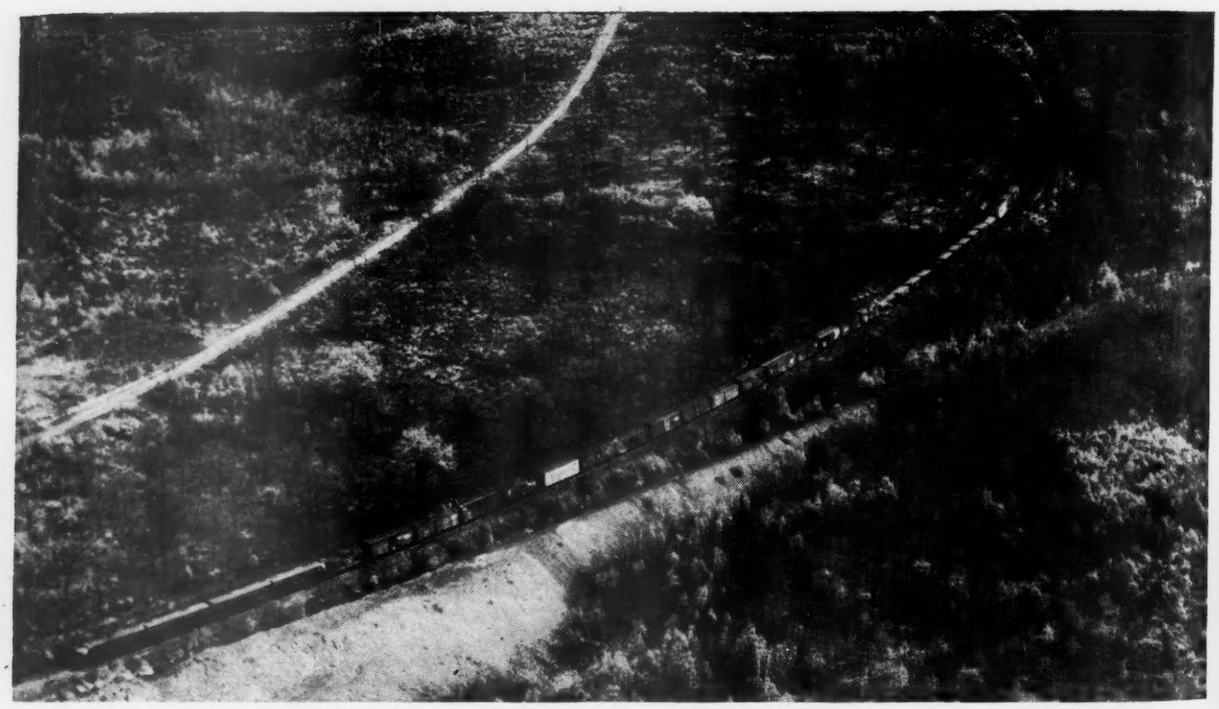
There is also, of course, the operating problem. A good supply of new freight and passenger cars in 1948 will help the solution of that problem.

For a look ahead, over several years, the following quotation from the final report of the Railroad Committee for the Study of Transportation (*Transportation in America*) seems to sum up the matter in a few words:

> Assuming the adoption and maintenance of sound economic programs on the part of our responsible legislators and executives, the railroads should for the next three or four years enjoy a volume of traffic which will be on a relatively high level as compared with pre-war years.
>
> When we go beyond 1950, we are sailing uncharted seas. But in this period, if we wisely maintain our national budget in balance, relieve to some extent the burden of taxation, and handle the public debt in such manner as to assure the integrity of government obligations, we see no reason why the decade of the 'fifties should not reflect an expanding economic frontier, consonant with the position of the United States as the leader of the world's commercial activity.

Speaking more particularly of 1948, the railroads hope for a prompt and satisfactory settlement of the issues in the rate case that was submitted to the commission in the closing days of 1947. They hope, and with some basis of sound expectation, for the delivery of more new equipment in 1948 than in 1947. They hope that all outstanding wage and working condition negotiations can be concluded at an early date. With higher rate levels and substantial volumes of traffic, they will continue to serve the public efficiently and adequately. And if war clouds threaten, they will be ready to step once more into the ranks, and supply the needs of national security, come what may.

* * *



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GENERAL NEWS

Sees Final Mail Pay Ruling Long Delayed

Report on interim increase says proceeding may run two years or more

Final determination of issues raised by the Post Office Department in the pending proceeding wherein the railroads are seeking a permanent increase of 45 per cent in their mail pay "will require considerable amounts of time, perhaps one and one-half to two years or, conceivably longer," according to the Interstate Commerce Commission's decision granting an interim increase of 25 per cent, effective February 1, and retroactive adjustments back to February 19, 1947. The commission's report, which was noted briefly in the *Railway Age* of December 27, 1947, stipulates that the compensation received under the interim increase "shall be subject to readjustment in accordance with the rates of pay and compensation that may be established by our further order herein."

On the matter of the time required for final decision, Commissioner Mitchell, who presided at hearings held thus far, said in a separate concurring opinion that it was evident to him it would be "impossible to secure a final decision for a matter of years." He explained that he found it necessary to set forth his views because of the dissenting opinion filed by Commissioner Lee who opposed the interim increase and said it was "open to question" whether the government will be entitled to a refund should such increase ultimately be found not justified.

First Advance Since 1928—The report was in No. 9200, Railway Mail Pay, which was reopened for the purpose of considering the railroad petitions; and the interim increase will be the first general advance in mail pay since 1928. The retroactive adjustments will apply back to the dates of the railroad applications—to February 19, 1947, with respect to most roads, 204 of them having been parties to the application filed on that date. Twelve others applied on April 17, 1947, the date from which the retroactive adjustment will apply with respect to them. The commission calculated that the 25 per cent increase "will amount to about $32,250,000 per year based on the total mail revenues of $129,000,000 reported by the Class I applicant railroads for 1946 and to about $34,500,000 per year based on the total estimated mail revenue of $138,030,000 for 1947." The railroads had sought an interim increase of 35 per cent.

In leading up to its prediction that final determination of issues may take considerable time the commission said that the "necessity for interim relief" was an "important question" in view of the Post Office Department's contention that "the entire method of payment for railway mail service by the railroads is in issue." It went on to cite the department's allegation that "in many respects the present rules and regulations governing mail service and pay are unjust and unreasonable."

Basis of Pay Challenged—"That issue if presented for final determination," the report continued, "probably will require an extended examination of the rules and regulations under which mail service is requested by the department and furnished by the railroads, the methods of operation and the extent to which unoccupied space is necessarily furnished and must be considered in determining costs of performing the service. . . . At the present time, the department has asked for a postponement of the hearings for a period of at least six months to permit further study of the testimony and exhibits submitted by the applicant railroads, and to prepare, in part at least, the department side of the proceeding. It would not be fair or just to require the railroads to continue to carry the mails under the present terms and conditions at rates which we find upon the record are now unduly low, even though we cannot determine at this stage what the ultimate rates should be. Such findings will not affect the right of the department to a full hearing."

In the latter connection, the report noted how the railroads had conceded the commission's authority to require a retroactive readjustment in accordance with its final decision. It also pointed out that the Class I applicants "expressly consented to abide by a condition attached to our interim order that they repay the postmaster general, with interest, any portion of the increase so required which may later be found by us to be in excess of fair and reasonable compensation for the period or periods covered."

The remainder of the majority report reviewed the progress of the proceeding thus far and discussed evidence relating to increases in railroad operating expenses since 1925 and 1928 and to the cost study submitted by the carriers. In view of criticisms of this cost study and "the lack of direct evidence

(*Continued on page 260*)

Another Interim Rate Increase

The Interstate Commerce Commission on December 30, 1947, authorized the railroads participating in the Ex Parte No. 166 freight rate-increase proceeding to effect a general interim emergency increase in rates of 20 per cent, in general, in place of the 10 per cent general interim increase authorized October 6. The present enlargement of the general increase from 10 per cent to 20 provides that the specific increases applicable in October to iron ore, coal and coke be increased proportionately.

The latest temporary increase was made effective until June 30, unless sooner terminated by the commission's order on further consideration of the record in Ex Parte No. 166, and was approved, it was indicated, in recognition of the railroads' pressing need for additional revenues. The commission stated its intention to proceed "diligently" with its consideration of the application for a permanent 30 per cent increase and the other issues involved in the case. The commission's staff estimated that, on the basis of 1947 traffic, the additional revenue, on an annual basis, as compared to the rates effective prior to the first interim increase, would be about $1,230,000,000.

New York Railroad Operations Disrupted by Record Snowfall

As this issue of *Railway Age* went to press railroads in the New York area, as well as the area's municipalities, were still digging themselves out from under a record-breaking 26-in. snow which fell on Friday, December 26, 1947. Railroad spokesmen said the storm, which disrupted schedules on all lines serving the city, will increase December operating expenses to an extent which may offset the recently-granted 8.9 per cent freight rate increase.

At the same time the Boston & Maine reported that the heaviest storm in years in the greater Boston, Mass., area and a moderately heavy snowfall on other sections served by the system caused some delays on December 26 although no trains were discontinued. With the road's regular snow-fighting forces augmented by extra men, normal service was restored on all lines with 99 per cent of trains on time on Saturday morning.

Baltimore & Ohio operations in the passenger car yard at Jersey City, N. J.,

News Department continued on the next left-hand page.

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were slowed down, resulting in delays of 10 minutes to 4 hours on westbound trains. Eastbound trains arrived approximately on time. The road's train-connecting buses between the Jersey City terminal and various points on Manhattan continued in operation throughout the storm, subject to some delays. The bus service to Brooklyn was suspended, but normal operation of all bus service was restored by Sunday. More passenger traffic was handled by the B. & O. in and out of New York over the holiday weekend than ever before in the road's history. On the electrified Staten Island Rapid Transit, a B. & O. subsidiary, some service was maintained on the North Shore line and the "old line" during the storm by the use of Diesel motive power. Service was suspended on the South Beach line because of third-rail trouble, but it was restored on Monday.

Lehigh Valley operations around the Oak Island yard were slowed down by the snow but everything was practically back to normal by Monday. Delaware, Lackawanna & Western commutation zone schedules were virtually abandoned by about 4:30 p.m. on Friday and trains were being operated as fast as the equipment became available to handle a greatly augmented volume of business resulting from the tie-up of other transportation in its territory. On Saturday 300 laborers were brought into the scene of New Jersey operations from Scranton, Pa., to help remove the snow. Many of these men were used to clear switches and stations, much delay having been occasioned by drifting snow at the latter places which impeded the movement of passengers boarding and leaving trains. The Lackawanna continued to handle into New York during the emergency livestock, perishables, fuel and other urgent freight. The estimated cost of the storm to this road is $250,000. Passenger-train operations were virtually normal on Saturday and thereafter, except that trains were delayed at stations by the large crowds.

The New York Central suspended all commuter train operations on the Harlem division from early evening Friday to 1 p.m. the following day, the primary cause being snowed-under equipment at the Mott Haven yards. With the situation starting to ease on Saturday, service on the Harlem division was opened up on an hourly schedule. Through trains were subjected to delays of many hours, but on Monday morning the road was able to report that commuter service had been restored, with trains running 10 to 15 minutes late, although through trains were still leaving and departing 45 minutes to 2 hours late.

Despite using all available snow-fighting equipment and hiring 2,000 extra men on Friday, the Long Island, at 4 p.m., was forced to discontinue westbound service on its Port Washington branch and, at 5 p.m., on the Rockaway Beach branch. Operations on the latter branch were restored on Saturday around noon and service was opened on the Port Washington branch about one hour later. Some electric trains were stalled on main lines all Friday night and an attempt was made to alleviate passenger discomfort by providing hot coffee and sandwiches from the road's commissary. A partial list of the equipment used to deal with the storm includes 3,335 gas and electric switch heaters, 448 third rail heaters, a steam-powered rotary plow in steam territory and 2 nose plows. Patrol trains were operated in the electrified territory during Friday, Saturday and Sunday nights, as well as four flanger-chloride trains behind steam locomotives.

By 6 a.m. Saturday an hourly shuttle service was placed in operation on the Hempstead branch to New York and from Far Rockaway to Brooklyn. The shuttle service was abandoned and regular schedules were resumed at 1:10 a.m. Sunday, except for the West Hempstead branch, which was out of service from Saturday noon until Sunday morning at 6. Fairly normal operations were possible throughout Sunday. Between Babylon and Jamaica and Floral Park and Jamaica, additional stops were made by steam locomotives to pick up passengers customarily hauled by electric power. Monday morning the road announced it would attempt to operate normal commuter service, subject to possible delay because of iced third rails.

The Pennsylvania reported that on Friday its commuter service stood up fairly well, although there were some delays. Several hundred extra men were detailed to clear snow. Outbound through trains were said to be pretty much on schedule by Monday but storm conditions, augmented by the derailment of 17 freight cars at Burgettstown, Pa., about 25 miles west of Pittsburgh, were delaying inbound trains from one-half to 3 hours. North Jersey shore commuter trains were falling from 30 to 40 minutes behind schedule because of the failure of an engine at Long Branch, N. J.

Increase in Coach Fares Sought by Eleven Southern Carriers

Eleven railroads operating in the south have asked the Interstate Commerce Commission for authority to increase, on five days' notice, their one-way coach fares by 13.63 per cent or from 2.2 cents per mile to approximately 2.5 cents per mile. Authority also is sought to increase round-trip coach fares to approximately 2.25 cents per mile in each direction and to raise the minimum one-way fare to 15 cents.

The 11 roads—the Albany & Northern, Central of Georgia, Florida East Coast, Gulf, Mobile & Ohio, Illinois Central, Louisville & Nashville, Macon, Dublin & Savannah, Mississippi Central, Nashville, Chattanooga & St. Louis, Seaboard Air Line and Tennessee Central—told the commission that the establishment of the fares proposed will result in uniform interstate coach fares over the lines of practically all carriers in the south. As reported in *Railway Age* of October 11, 1947, page 77, the commission authorized 26 other southern roads to increase their coach fares to the same basis.

Lee I. C. C. Chairman for 1948; Succeeds Aitchison

Interstate Commerce Commissioner William E. Lee has been chosen by the commission as its chairman for the year 1948. He succeeds Clyde B. Aitchison, who continues as a member of the commission.

Chairman Lee was originally appointed a member of the commission by President Hoover in 1930 to fill the unexpired term of Johnston B. Campbell, who had resigned. He is now serving his third full term to which he was appointed by President Truman in 1945. The term expires December 31, 1952. He previously served as chairman of the commission in the calendar year 1934.

Mr. Lee, a lawyer by profession, was born in North Carolina but lived for many years in Idaho. At the time of his original appointment to the commission, he was chief justice of the Supreme Court of Idaho.

Higher Loadings in First Quarter Are Expected by Shippers Boards

Freight car loadings in the first quarter of 1948 are expected to be 3.5 per cent above those in the same period in 1947, according to estimates by the 13 Shippers Advisory Boards.

On the basis of those estimates, loadings of the 32 principal commodity groups will be 7,920,416 cars in the first quarter of 1948, compared with 7,652,689 actual car loadings for the same commodities in the corresponding period last year. All of the 13 boards, except the Mid-West and the Trans-Missouri-Kansas regions estimate an increase in carloadings for the first quarter of 1948 as compared with the same period in 1947.

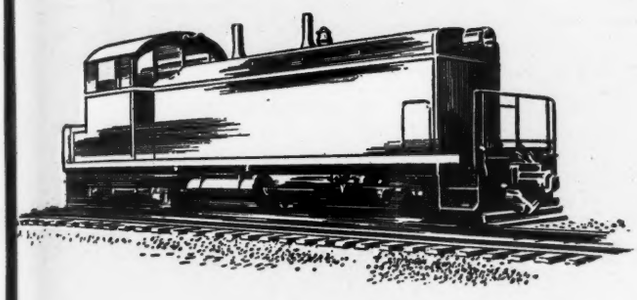
The tabulation shows actual carloadings for each district in the first quarter of 1947, the estimated loadings for the first quarter of 1948, and the percentage of increase or decrease.

Shippers Advisory Boards	Actual Loadings First Quarter of 1947	Estimated Loadings First Quarter of 1948	Per Cent Increase
Great Lakes	433,505	480,046	10.7
Ohio Valley	1,068,476	1,074,465	0.6
Mid-West	973,808	962,648	1.1 dec.
Northwest	287,374	293,237	2.0
Trans-Mo.-Kansas	409,741	402,948	1.7 dec.
Southeast	960,444	1,010,054	5.2
Southwest	507,942	531,083	4.6
New England	171,504	176,349	2.8
Atlantic States	813,406	864,605	6.3
Allegheny	1,138,825	1,182,281	3.8
Central Western	310,764	314,704	1.3
Pacific Coast	332,407	370,455	11.4
Pacific Northwest	244,493	257,541	5.3
Total	7,652,689	7,920,416	3.5

The 13 boards expect an increase in the first quarter of 1948, as compared with the same 1947 period, in the loading of 26 of the commodity groups listed

Table continued on the next left-hand page.

The FACTS are in the FIGURES



The ability of General Motors Diesel switchers to reduce operating costs is a well-known fact. Fuel expenses have been slashed 75 per cent — maintenance costs and enginehouse expense reduced 50 per cent and 60 per cent respectively — and water costs eliminated entirely.

But even these do not reflect the full potential savings with General Motors Diesels. Their high availability, coupled with superior flexibility and faster switching, means fewer locomotives required to handle 24-hour-daily operation. Their exceptional visibility and high tractive effort make possible faster and smoother car movements with greater safety and reduced claims.

The operating figures for the 23 switchers, high-lighted here, bear witness to the fact that General Motors Diesels are by far the most profitable motive power investment.

CHICAGO RIVER AND INDIANA

Seven 600 H.P. General Motors switchers, during period July 1936 through June 1947, have worked a total of 541,310 hours with average availability of 91.1%. Completing 921 locomotive months of service, they attained an average per locomotive of—

588 hours per month

LOUISVILLE & NASHVILLE

Five 600 H.P. General Motors switchers, operating since the first was placed in service in September 1939, have worked a total of 235,346 hours as of June 30, 1947. Average availability, 93.8%. The record across 357 locomotive months figures to—

659 hours per month

RIVER TERMINAL — CLEVELAND

Two 600 H.P. General Motors switchers, the first going into service in September 1936, have been available 92.5% of the time as of June 30, 1947. Total hours worked, 164,957—an average per locomotive of—

649 hours per month

WABASH

Eight 600 H.P. and 1-1000 H.P. General Motors switchers, from April 1939, date first switcher entered service, through June 30, 1947 worked a total of 395,098 hours. Average availability for the period, 91.6%. Average of—

636 hours per month

GENERAL MOTORS LOCOMOTIVES

ELECTRO-MOTIVE DIVISION

GENERAL MOTORS — LA GRANGE, ILL.

and a decrease in six. Among those showing the greatest increases are the following: agricultural implements and vehicles, other than automobiles, 21 per cent; vehicle parts, 21.6 per cent; lime and plaster, 17.2 per cent; fresh fruits other than citrus fruits, 14.1 per cent; cotton, 11.7 per cent; cement, 11.7 per cent; citrus fruits 10.9 per cent; ore and concentrates, 9.9 per cent; cottonseed, soy bean-vegetable cake and meal, excluding oil, 8.9 per cent; brick and clay products, 8.4 per cent; sugar, syrup and molasses, 8.4 per cent; salt, 8.3 per cent; iron and steel, 7.6 per cent; potatoes, 7.4 per cent; machinery and boilers, 7.3 per cent; paper, paperboard and prepared roofing, 6.7 per cent; fertilizers of all kinds, 6.1 per cent; metals, other than iron and steels, 6.1 per cent; food products in cans and packages, 5.7 per cent; lumber and forest products, 5.5 per cent; gravel, sand and stone, 5 per cent; and coal and coke, 1.9 per cent.

Commodities for which decreases are estimated and the amount of the decrease include the following: livestock, 10.9 per cent; automobiles and trucks, 4.6 per cent; grain, 3.5 per cent; and poultry and dairy products, 2.1 per cent.

Bardwell Named Among "Ten Ablest Chemists"

R. C. Bardwell, superintendent water supply of the Chesapeake & Ohio, with headquarters at Richmond, Va., has been named among the ten ablest chemists and chemical engineers in the field of "water, sewerage, and sanitation," in a poll conducted by the Chemical Bulletin, publication of the Chicago section of the American Chemical Society. The poll covered 20 specialized fields.

Freight Car Loadings

Freight car loadings for the week ended December 27 were not available when this issue went to press.

Loadings of revenue freight for the week ended December 20 totaled 832,130 cars, and the summary for that week as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loadings

For the Week Ended Saturday, December 20

District	1947	1946	1945
Eastern	155,969	157,103	125,812
Allegheny	173,244	171,206	145,253
Pocahontas	68,570	74,111	54,031
Southern	138,252	140,705	112,650
Northwestern	90,572	86,919	79,979
Central Western	138,625	137,286	113,629
Southwestern	66,898	68,855	56,491
Total Western Districts	296,095	293,060	250,099
Total All Roads	832,130	836,185	687,845
Commodities:			
Grain and grain products	45,760	53,335	45,699
Livestock	11,956	15,653	16,973
Coal	192,720	198,310	157,785
Coke	15,572	14,301	13,008
Forest products	44,945	46,207	31,089
Ore	16,689	12,805	9,606
Merchandise l.c.l.	112,561	122,007	105,193
Miscellaneous	391,927	373,567	308,492
December 20	832,130	836,185	687,845
December 13	854,159	828,751	771,594
December 6	878,588	729,084	776,376
November 29	792,339	660,911	803,774
November 22	902,672	806,593	716,556
Cumulative total, 51 weeks	43,903,992	40,713,311	41,412,143

General News
Continued on page 260

EQUIPMENT AND SUPPLIES

SIGNALING

NORFOLK & WESTERN.—This road has announced a program involving the replacement and improvement of the present interlocking plants at the Roanoke, Va., passenger station and at Walton, and modernization of the signal system between the two points, at a cost of more than $1,000,000. The project is scheduled to start in early spring. In addition to the renewal of the Roanoke plant, its span of operations will be extended westward from Jefferson street to Second street, northwest. Along the 39-mi. between Roanoke and Walton the present direct current will be changed to coded signal operation.

LOCOMOTIVE

THE SOUTHERN PACIFIC has ordered 20 6,000-HP. Diesel-electric freight locomotives from Electro-Motive Division of General Motors Corporation and 20 1,000-HP. switchers, 10 each to be built by the Baldwin Locomotive Works and the American Locomotive Company. Delivery is expected to begin during the third quarter of 1948 and is scheduled to be completed by the second quarter of 1949. These Diesels will increase the road's number of Diesel-electric locomotives to 230.

MARINE

The PENNSYLVANIA has ordered two 330-ft., 3-track, welded steel car floats, each with a 20-car capacity and costing $180,000, and two 250-ft., 2-track, welded steel platform car floats, each with a 10-car capacity and costing $127,950, from the New York Shipbuilding Company. The road also has ordered ten 80-ft. open-deck lighters of 250-ton capacity, costing $32,900 each, from the American Bridge Company. With the exception of the 250-ft. car floats, which will be used at Philadelphia, Pa., the new equipment is destined for use in New York harbor.

SUPPLY TRADE

The **American Locomotive Company** has announced the completion of a new department in a new building at the Schenectady, N.Y., works, which brings together in a central location the formerly scattered facilities for designing and manufacturing small tools, jigs and fixtures, templates and dies. The new two-story building, 65-ft. wide by 288-ft. long, houses a heat treating department equipped with electric salt baths for tempering high-speed tools; a high-speed hardening machine for hardening chisels uniformly; a special machine for tool cleaning; and an air-conditioned, constant temperature gage-checking room, as well as comparators and gage-checking equipment.

The **United States Steel Corporation of Delaware** has announced the appointment of **R. Conrad Cooper** as industrial engineering vice-president, **Richard F. Sentner** as assistant sales vice-president and **M. W. Reed** as chief engineer. All of the appointments were effective January 1.

Albert W. Faulconbridge, formerly production manager and manager of the Railroad Division of the Haskelite Manufacturing Corporation, has been elected vice-president of the **Ajax-Consolidated Company,** with headquarters at Chicago.

Abner G. Updike and **G. K. Dickenson** have been appointed sales managers of the **Mobile Communications Division** of the **Farnsworth Television & Radio Corp.** Mr. Updike will be in charge of sales in the New England and East Central states and Mr. Dickenson will handle sales in the West Central and Southwestern states.

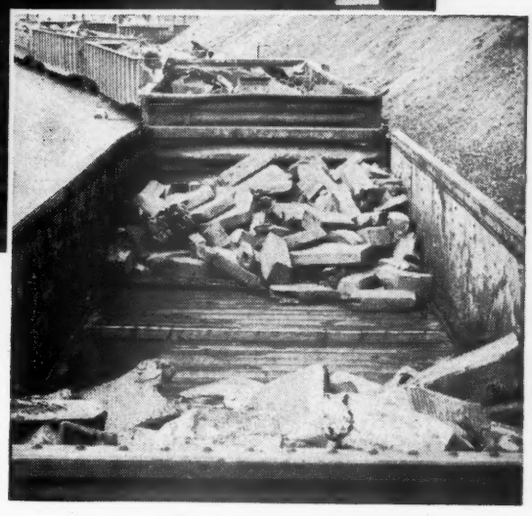
OBITUARY

Emil W. K. Roe, president of the Aldon Company, Chicago, died at his home in Wilmette, Ill., on December 15, at the age of 73 years.

Charles H. White, director of sales of the South and West regions of the Industrial Brownhoist Corporation at Chicago, died suddenly on December 24 at Cleveland, Ohio. Mr. White was secretary and director of exhibits of the National Railway Appliances Association since 1935, and also served as president of that association in 1936.

News Department continued on the second left-hand page.

BETTER BLOCKED AND SKIDDED LOADS! This typical example shows heavy freight in a boxcar equipped with Nailable Steel Flooring.



IT CAN "TAKE IT"! Steel scrap loaded in a gondola. After 16 months of tough steel mill service, this Nailable Steel Floor has retained the over-all flat contour necessary for skidded loads. Nailability is not impaired.

Nailable Steel Flooring is a great new development in freight car construction and offers major advantages over conventional flooring. Because it's tough, tight and nailable, it can handle all types of gondola and boxcar freight—finished goods that must be blocked in place, fine bulk freight that requires a tight car, and heavy, rough material that chews up less durable surfaces.

Made of tough, corrosion-resistant N-A-X HIGH-TENSILE, Nailable Steel Flooring channels are designed for high wear - resistance, impact - toughness and structural strength. Channel surfaces may become dented, but the flanges do not give and the floor remains generally flat throughout its length. After the roughest loading and unloading of the heaviest materials, Nailable Steel Flooring provides a good surface for skidded loads.

Moreover, the rigidity of the channels strengthens the entire car . . . makes it better able to withstand humping and sudden stops. It will pay you to investigate the use of Nailable Steel Flooring for new-car construction and old-car rebuilding. Write for booklet.

CORPORATION

UNIT OF NATIONAL STEEL CORPORATION

NAILABLE STEEL FLOORING

A GREAT LAKES STEEL PRODUCT

N-A-X High-Tensile Steel Offers Superior Properties For Many Railway Applications

Profitable railway applications of N-A-X HIGH-TENSILE steel are by no means limited to Nailable Steel Flooring. With a 50% higher yield strength than carbon steels, N-A-X HIGH-TENSILE can cut deadweight and increase payloads in many ways. It combines a high degree of strength and toughness with good fatigue- and corrosion - resistance and excellent cold-forming and welding properties.

FINANCIAL

CHICAGO, ROCK ISLAND & PACIFIC.—*Reorganization.*—Division 4 of the Interstate Commerce Commission has issued a supplemental report in the Finance Docket No. 10028 proceeding in which it has granted the necessary authorizations to enable this road's reorganization managers to carry out the commission and court-approved plan of reorganization under section 77 of the Bankruptcy Act. The commission's report of December 23, 1947, authorizes the acquisition of properties, the issuance of securities, including scrip certificates, and the assumption by the reorganized company of certain obligations and liabilities as outlined in *Railway Age* of December 13, 1947, page 84. The order prescribes certain conditions, including protection for those employees who may be affected by the reorganization.

The commission's order also served to deny a recent petition filed by the State of Texas, which, in seeking a reopening of the proceeding, protested to the acquisition by the reorganized company of the properties of the Chicago & Rock Island & Gulf, a subsidiary debtor. The state alleged that such acquisition was illegal because it was based upon "assumed authority" of the commission under section 77 rather than the result of proceedings under section 5 of the Interstate Commerce Act. It also asserted that the constitution and statutes of Texas prohibit the merger of the C. R. I. & G., a Texas corporation, with any other railroad not incorporated in that state and that no road may operate in intrastate commerce in Texas unless it is incorporated under Texas laws.

The commission also denied a petition for rehearing filed by a group of holders of 4½ per cent convertible gold bonds.

READING.—*Lease of Mount Carmel.*—Division 4 of the Interstate Commerce Commission has approved, subject to the usual employee-protection conditions, several modifications to a lease of October 1, 1937, under which the Reading operates the properties of the Mount Carmel. The commission said that the lease permits the Reading access to the colliery at a lower charge than on a switching basis and enables it to compete with the Pennsylvania, which has a direct connection.

Dividends Declared

Augusta & Savannah.—$2.50, semi-annually, payable January 2 to holders of record December 15.

Belt Stockyards.—common, 50¢, quarterly; 6% preferred, 75¢, quarterly, both payable January 2 to holders of record December 20.

Denver & Rio Grande Western.—5% preferred (accum.), $5.00, payable January 12 to holders of record January 2.

Grand Rapids & Indiana.—$2.00, semi-annually, payable December 30.

Mill Creek & Mine Hill Navigation.—$1.25, semi-annually, payable January 8 to holders of record December 26.

Mount Carbon & Port Carbon.—$1.25, semi-annually, payable January 8 to holders of record December 26.

Reading.—25¢, quarterly, payable February 12 to holders of record January 15.

Tunnel of St. Louis.—$3.00, semi-annually, payable December 23 to holders of record December 15.

Wabash.—(year-end), $1.00, payable December 26 to holders of record December 12.

RAILWAY OFFICERS

EXECUTIVE

F. S. Hales, whose appointment as vice-president—operation of the New York, Chicago & St. Louis at Cleveland, Ohio, was reported in *Railway Age* of December 6, 1947, was born at Wilson, N.C., on April 13, 1893. Mr. Hales received his B.E. degree from North Carolina State College in 1913 and his C.E. degree from Cornell University in 1916. He was instructor in mathematics at North Carolina State College during 1913 and 1914. Mr. Hales entered railroad service in 1916 as draftsman in the grade elimination department of the Nickel Plate, serving in that capacity until June, 1918, when he entered the U.S. Army as 2nd lieutenant, Field Artillery. In December, 1918, Mr.

F. S. Hales

Hales returned to the grade elimination department of the New York, Chicago & St. Louis and the following year he became assistant to corporate chief engineer, during federal control settlement. In 1920 he became assistant engineer, bridge design and steel inspection and in 1924 he was appointed engineer of track. Four years later he was put in charge of construction on grade elimination and additional facilities in connection with Nickel Plate tracks in the Cleveland Terminal improvements. From 1932 to 1939 Mr. Hales was engineer of track of the Nickel Plate and on December 1, 1940, he became bridge engineer. He was appointed assistant general superintendent on September 1, 1942, and in May, 1944, he was promoted to assistant to the president, which position he held at the time of his recent appointment as vice-president—operation.

W. W. Cox, comptroller of the Delaware & Hudson, has been elected vice-president and comptroller, with headquarters at New York.

A. D. Dugan, assistant to executive vice-president of the New York Central at New York, has been appointed assistant vice-president at New York. **H. J. Palmer** has been appointed transportation assistant to vice-president.

S. T. W. Green, general superintendent of the Lehigh & New England at Bethlehem, Pa., has been elected vice-president and general manager, with the same headquarters. The positions of executive vice-president and general manager and general superintendent have been abolished. **C. A. Andrews,** comptroller, has been elected a vice-president of the company in addition to his duties as comptroller, with headquarters as before at Bethlehem, Pa.

Perry M. Shoemaker, general manager of the Delaware, Lackawanna & Western at New York, has been appointed vice-president in charge of operations. Mr. Shoemaker was born at Elmira, N. Y., on July 15, 1906, and received his B. S. E. from University of Michigan in 1928. He was awarded the Strathcona Fellowship at Yale University, which institution conferred upon him the degree of M. Sc. in Transportation Engineering. Mr. Shoemaker entered railroad service as a track laborer with the Pennsylvania during the summers of 1926 and 1927, and during the summer of 1928 he was

Perry M. Shoemaker

dynamometer assistant with the Erie. From 1929 to 1932 he was station laborer, freight checker, terminal yardmaster and general yardmaster of the Erie and from 1934 to June 1, 1941, he was research assistant and superintendent freight transportation of the New York, New Haven & Hartford at New Haven, Conn. From June to September, 1941, Mr. Shoemaker served as transportation assistant to president of the Lackawanna, becoming superintendent of the Morris and Essex division of that road at Hoboken, N. J., on the latter date. On January 1, 1943, he was appointed general superintendent of the Lackawanna, becoming general

manager on April 1, 1946, which position he held until his recent appointment.

E. E. McInnis, vice-president and general counsel of the Atchison, Topeka & Santa Fe, with headquarters at Chicago, retired on January 1, after an association of 26 years with the road. He is succeeded by **Jonathan C. Gibson**, general solicitor at Chicago, who in turn will be replaced by **R. S. Outlaw**, general attorney there.

FINANCIAL, LEGAL AND ACCOUNTING

E. R. Herbert, assistant treasurer of the Ontario Northland, has been promoted to treasurer, with headquarters as before at North Bay, Ont. **J. B. Willis**, paymaster, succeeds Mr. Herbert as assistant treasurer. The functions of the paymaster will in the future be performed by the treasury department. **H. W. Teskey**, auditor of revenues, has been appointed comptroller. **E. L. Sherman**, general accountant, has been appointed auditor of disbursements. **C. H. Stevenson**, assistant auditor of revenues, has been promoted to auditor of revenues. **A. A. Hansman**, assistant general accountant, has been appointed general accountant. **H. W. Stuckey**, traveling auditor, has been appointed assistant auditor of revenues. All of the above will have their headquarters at North Bay.

OPERATING

W. L. Turner, route agent of the Railway Express Agency, with headquarters at Roanoke, Va., has retired after 48 years' express and railroad service.

J. J. Stockard has been appointed acting superintendent of the Western division of the Atlantic Coast Line, with headquarters at Manchester, Ga. The position of assistant superintendent has been abolished. **T. A. Mitchell** has been appointed supervisor of signals, with headquarters at Charleston, S. C., succeeding **C. H. Wiegand**, deceased.

G. E. Ellis, general yardmaster of the Toronto terminals of the Canadian National at Toronto, Ont., has been appointed assistant superintendent of the Toronto terminals, with the same headquarters.

David Drummond, Oriental manager for the Canadian Pacific Steamships at Hong Kong, China, since 1934, has retired on pension after 48 years of service with this company. **David Charleton Miller**, agent at Hong Kong, succeeds Mr. Drummond as Oriental manager.

H. E. Carrier has been appointed superintendent of the Pittsburg & Shawmut, with headquarters at Kittanning, Pa. **Walter E. Buhite** has been appointed trainmaster, with headquarters at Brookville, Pa., and Kittanning. **Frank C. Watrous** has been appointed trainmaster and road foreman of engines at Brookville. **J. A. Serene, Jr.**, has been appointed acting chief train dispatcher at Kittanning.

H. G. Farnham, superintendent of the Rochester division of the New York Central, at Rochester, N. Y., has been transferred to the St. Lawrence, Ottawa and Adirondack divisions, with headquarters at Watertown, N. Y., succeeding **W. A. Hamler**, who retired on December 31, 1947, under the pension regulations of the company, after 56 years of service. **J. D. Carkhuff**, assistant superintendent of the Electric, Harlem and Putnam divisions at New York, has been promoted to superintendent of the Rochester division. **R. G. May**, assistant superintendent of the New York Terminal district at New York, has been transferred to succeed Mr. Carkhuff. **C. B. Fleming**, trainmaster of the New York Terminal district, succeeds Mr. May as assistant superintendent of that district. **F. H. Dugan**, trainmaster at Rochester, has been transferred to the New York Terminal district. **F. W. Trimmer**, trainmaster of the Syracuse division at Lyons, N. Y., has been transferred to the Rochester division. **R. S. Reuss**, assistant trainmaster at Pittsfield, Mass., has been appointed trainmaster of the Syracuse division.

Mr. Hamler was born near Philipsburg, Pa., on November 27, 1878, and entered railroad service on December 26, 1891, as telegraph operator with the Beech Creek (now part of the New York Central). He then served successively as train dispatcher at Jersey Shore, Pa.; chief train dispatcher, assistant trainmaster, trainmaster at Jersey Shore, Corning and Buffalo, N. Y., and assistant superintendent at Jersey Shore. On November 1, 1924, Mr. Hamler was promoted to superintendent of the Ontario division and two years later he was transferred to the St. Lawrence division at Watertown, N. Y. In January, 1927, he was transferred to the Buffalo division at Buffalo, N. Y., and in January, 1930, to the Pennsylvania division at Corning, N. Y. Mr. Hamler transferred to Jersey Shore in April, 1931, and six months later he went to the St. Lawrence division at Watertown, his jurisdiction being extended over the Adirondack and Ottawa divisions on June 1, 1933.

TRAFFIC

S. P. Trapnell has been appointed traffic manager of the Wrightsville & Tennille, the Louisville & Wadley, the Wadley Southern and the Sylvania Central, with headquarters at Dublin, Ga.

R. W. Bramwell has been appointed general traffic manager of the Pittsburgh & West Virginia at Pittsburgh, Pa. **H. J. Reis**, general freight agent (rates) at Pittsburgh, has been appointed traffic manager—rates and divisions. **Albert H. Graham**, assistant to vice-president (traffic) at Pittsburgh, has been appointed traffic manager—sales and service. **P. J. Murphy** has been appointed general freight agent—rates and divisions. **E. J. Siemon, Jr.**, has been appointed assistant general freight agent — rates and divisions. **W. R. Arnold** has been appointed general agent at New York and **V. G. Anderson** has been appointed general agent at Detroit, Mich.

Harry C. Schmidt, freight traffic manager of the Delaware, Lackawanna & Western at New York, has been promoted to general freight traffic manager. **James G. Cunningham**, chief clerk to the president, has been promoted to assistant secretary of the company.

Walter W. Kremer, general freight agent of the Canadian Pacific at Chicago, has been appointed general traffic manager of the Minneapolis, St. Paul & Sault Ste. Marie at Minneapolis, Minn., succeeding **G. Allan MacNamara**, who has been appointed vice-president of traffic of the Canadian Pacific at Montreal, Que.

ENGINEERING AND SIGNALING

W. H. Miesse, assistant district engineer of the New York Central at Detroit, Mich., became district engineer, with the same headquarters, on January 1, succeeding **W. O. Houston**, who retired on that date. Mr. Miesse will be succeeded by **J. R. Scofield**, division engineer of the N. Y. C. and the Michigan Central (part of the N. Y. C.) at Chicago. **J. F. McCook**, division engineer at Detroit, has been transferred to Chicago to succeed Mr. Scofield. **J. W. Westwood**, assistant division engineer at Bay City, Mich., will be promoted to division engineer at Detroit, and **J. D. Fraser**, supervisor of bridges and buildings at Detroit will become assistant division engineer at Bay City. **G. W. Deblin** has been appointed assistant division engineer at Columbus, Ohio, succeeding **K. E. Dunn**, who has been transferred to Erie, Pa., to succeed **C. A. Geiger**, transferred. **Winfred E. Doty** has been appointed timber treating engineer, Line East of Buffalo, with headquarters at Rome, N. Y.

MECHANICAL

J. F. Oshmera, road foreman of engines of the Laurentian division of the Canadian National, has been appointed division master mechanic of the Cochrane division at Cochrane, Ont., succeeding **T. S. Lowe**, who has retired after many years of service.

E. L. Frazier, Jr., master mechanic of the Pittsburg & Shawmut at Brookville, Pa., has been appointed superintendent of motive power and equipment, with the same headquarters.

SPECIAL

The Railway Express Agency has announced the retirment on January 1 of **George M. Dallas**, superintendent of loss and damage prevention, after 58 years of service in the express business.

All new BURLINGTON cars

—including Vista Dome—

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Sees Final Mail Pay Ruling Long Delayed

(*Continued from page 248*)

from the department," the commission found it impossible to state the "exact cost" of carrying the mail in 1946.

Costs Have Increased—"However," it added, "upon this record we are convinced that the cost for that year and the probable cost in 1947, and in any future normal year in so far as this record permits a forecast, have increased considerably over the costs incurred in 1925 and when the present rates were prescribed in 1928, and that substantial increases in rates of mail pay are warranted. The applicant carriers have not shown that the costs have increased to the full extent asserted by them or that the entire increase of 45 per cent, or 35 per cent requested for the interim period, is justified at this time. However, considering the pertinent facts of record and the criticisms of the cost study as presented, the applicant carriers have shown, and we so find, that the costs for carrying the mail have increased at least 25 per cent over the 1925 costs which were before us at the time the present rates were prescribed in 1928."

As to its authority to order the interim adjustment, the commission asserted that it does have such power and that its administrative procedure "has conformed in all essential respects" with standards outlined by the Supreme Court. As to the contention of Post Office counsel that sufficient time had not been granted the department to prepare its case, the commission found "no basis whatsoever" for such a claim, "particularly as it relates to the present motion . . . for an interim order, the only matter now before us."

Dissenter Lee did not think sufficient time had been given the Post Office Department. He noted that, when the present basis of mail pay was fixed in 1928, three years had elapsed from the filing of the applications; and he referred to evidence that the appropriation whereby the department obtained funds to prepare its present case had not become available until July 31, 1947. Since that time, Mr. Lee found, the department "has been pursuing the matter with diligence," and he was "not satisfied that the hearing required by the act has been held." The separate concurring expression of the hearing commissioner, Mr. Mitchell, also had something to say about this matter.

No Surprise to Post Office—"The question of mail pay," it said, "is not new to the Post Office Department. It has been paying for this service for years. Since February 19, 1947, when the petition was filed, there were two prehearing conferences, attended by representatives of the carriers, and of the Post Office Department. There were continuances granted the department on four occasions. In June the exhibits on which the carriers rested their case for an increase in mail pay were furnished the representatives of the department. In July there was a hearing at which time the carriers introduced their evidence. At its request, the de-

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partment was granted almost three months' time in which to prepare to cross-examine the witnesses offered by the carriers, and to prepare to offer evidence on its own behalf. In other words, the department had the transcript of the entire record upon which the carriers were asking for the increase. At the September hearing the solicitor for the department spent two days cross-examining the carriers' witnesses. At that hearing he was given the opportunity to produce evidence why interim relief should not be granted; none was offered.

"I think Commissioner Lee overlooks the fact that this report deals only with the motion for interim relief. It has been the long-established policy of this commission to grant interim relief upon a proper showing. It was done in the present Ex Parte 166 rate case, in which Commissioner Lee joined, and it has been done in many other proceedings.

"It must be kept in mind that since 1928 there has been no increase in the amount allowed the railroads for carrying the mail. The increase in costs is known to everyone. . . . It is evident to me that it would be impossible to secure a final decision for a matter of years. The railroads, during that time, will be denied money to which they are rightly entitled, and if the same rule were followed in this case as was followed in the 1928 case, they would not be allowed interest on their money and they would be required to report for income tax purposes the lump sum received in the year it was received. . . . Eleven months have gone by and all that is now granted is interim relief, which the record amply shows these carriers are entitled to."

125,395 Freight Cars; 1,180 Locomotives on Order December 1

Railroads and private car lines had 125,395 new freight cars on order on December 1, 1947, as compared with 126,213 on November 1, 1947, according to the Association of American Railroads. Of the former total, Class I roads and railroad-owned private-controlled refrigerator companies had 110,822 new freight cars on order, the largest number on order at any time since April 1, 1923, when the total was 116,890. The number on order on November 1, 1947, was 109,467, as compared with 63,616 on December 1, 1946.

Cars on order by Class I roads and railroad-owned private-controlled refrigerator companies on December 1, 1947, included 46,608 hopper cars, of which 3,762 were covered hoppers; 13,292 gondolas, 871 flat, 6,034 refrigerator, 750 stock, 583 miscellaneous freight cars and 42,684 box cars, including 40,707 plain and ventilated and 1,977 automobile box cars. Of the total number of new freight cars which Class I roads had on order on December 1, 1947, 25,931 will be built in railroad shops and 84,891 in outside shops.

The Class I roads also had 1,180 locomotives on order on December 1, 1947, the most since October, 1923, when the number was 1,242. On December 1, 1946, there were 564 on order. The 1947 total included 33 steam, four electric and

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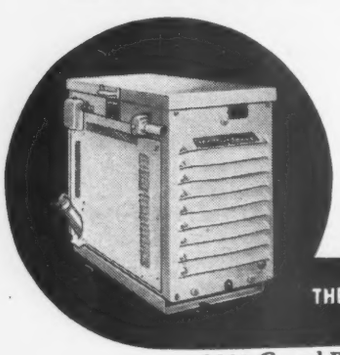

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1,143 Diesel-electric locomotives, compared with 65 steam, six electric and 493 Diesel-electrics in 1946.

Class I roads and railroad-owned private-controlled refrigerator car companies put 54,306 new freight cars in service in the first eleven months of 1947, compared with 37,219 in the same period in 1946. In November, 1947, the railroads installed 7,998 new freight cars —262 more than were installed in October, 1947—and the largest number for any month since April, 1942, when 10,478 were built.

New Freight cars installed in the 1947 11-months' period included 16,846 hopper cars, of which 1,367 were covered hoppers; 2,825 gondolas, 5,942 refrigerator, 990 flat, 500 stock, 351 miscellaneous freight cars and 26,852 box cars, including 23,539 plain and ventilated and 3,313 automobile box cars,

The Class I roads also put 751 new locomotives in service in the first 11 months of 1947 of which 69 were steam, two electric and 680 Diesel-electric. New locomotives installed in the same 1946 period totaled 480, of which 82 were steam and 398 Diesel-electric.

The Class I roads and railroad-owned private-controlled refrigerator companies retired 65,588 freight cars in the first 11 months of 1947, of which number 5,102 were retired in November. In the comparable 1946 period, 55,303 were retired.

Aid Program Calls for Export of 20,000 Cars in 1948-49

Exports to Europe of 20,000 freight cars during the period from April 1, 1948, to June 30, 1949, and 6,000 during the 12 months ending June 30, 1950, are contemplated in the "Outline of a European Recovery Program," which President Truman sent to Congress last week with his message urging approval of the so-called Marshall Plan. The "outline" sets out the Administration's determinations of what the aid program will undertake to do in the way of meeting the "requirements" submitted by the participating European countries.

These "requirements" were submitted to the Committee of European Economic Cooperation which was formed when representatives of the partcipating countries met in Paris last July. The C. E. E. S. report estimated the 1948 requirements for freight equipment at 47,000 cars. In discounting this to reach its own recommendation the present report said:

"European import requirements in excess of 26,000 cars, after allowance for repair of war-damaged stock, have not been adequately demonstrated. On this account, and in view of the internal needs in the United States, no provision has been made for exports from the United States beyond 20,000 cars in 1948-49 and 6,000 in 1949-50. Should a greater need be conclusively demonstrated, it should be possible to increase exports in the 1949-50 period and in subsequent years to a limit of 20,000 cars annually."

Meanwhile, the report had stated that rail transport in many European countries remains in "critical" condition.

"Shortages of equipment, repair parts, and fuel restrict movement," it continued. "Outside of Germany equipment available to the railroads averages only about 70 per cent of the prewar stock. The lines are barely able to handle current needs. In most European countries equipment is falling into unserviceable condition faster than freight cars can be repaired. In the bizonal area of Germany only 60 per cent of pre-war transport equipment is available in usable condition. With less support from inland waterways and highways than pre-war, the German railroad system can handle only about half of the essential civilian needs even at current subnormal levels of production and trade."

Truman Advisers Call Transport Subsidies "Traditional"

President Truman's Council of Economic Advisers interpret "the history of our improvements in transportation" as one which "strikingly proves the case that certain public activities, far from competing with private business, are indispensable to its operations and give mighty impetus to its progress." This comment, based on developments in the air and highway field, was contained in the council's second annual report to the President, which was made public December 22.

It was embodied in a discussion which had for its text a quotation from the declaration of policy contained in the Employment Act of 1946. The council, which was created by that act, interpreted the cited passage as one involving "frank recognition that the government accepts a complementary role in areas where, or in times when, private enterprise fails to provide adequate productive use of the nation's resources." The fields of education, medicine, and amusements are the first examples given, and the report goes on to mention transportation as "another area in which a substantial measure of governmental participation has become traditional. Then comes the statement quoted at the outset herein, the report continuing to add:

"Notable at the present time is the strong and legitimate desire to have both local and central governments move to establish municipal airports and an overall system of regulation of air traffic. Actual transportation service by air is left to private enterprise, and popular sentiment has called for government patronage and several forms of financial aid so that the service might be developed more amply and rapidly than it could be through sole reliance on the commercial rates which the traveling and shipping public could or would pay."

"Similarly, both manufacturers of highway machinery and roadbuilding supplies on the one side and bus and truck companies and farmers on the other have been ardent proponents of the hard roads program. While both the building and the using of roads remain in the realm of private enterprise, the economic leadership in developing these enlarged areas is the connecting link for which public action provides the most adequate agency."

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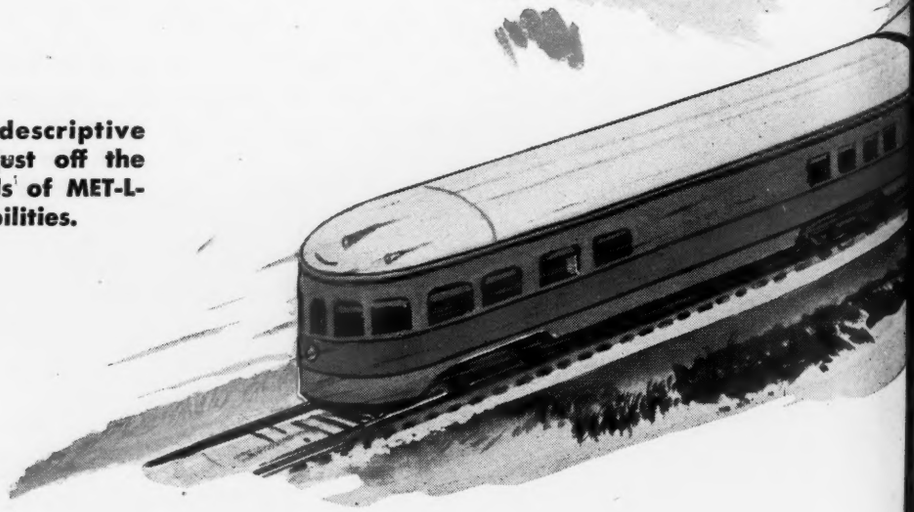

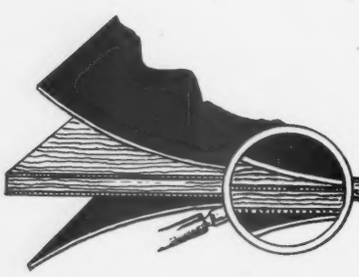

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